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DERMATITIS VENENATA RESULTING FROM CONTACT WITH MARINE ANIMALS (HYDROIDS)

Report of Cases

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THE ABILITY of various marine animals of the Coelenterata phylum to produce toxic reactions on their victims is well established. The sting of the jellyfish may produce a severe local reaction, profound shock or even death.[1] Weidman[2] has described certain dermatoses (zoacanthoses) resulting from the trauma following "introduction and retention of animal structures such as piercing mouth parts and bristles." The Suttons[3] stated that Metazoa of many kind may "provoke eczematous dermatitis," and in their textbook they mentioned further that the Coelenterates (jellyfish, hydroids and corals) are known to be factors in producing cutaneous irritation. Scanning of the available dermatologic literature failed to disclose any other reports concerning cutaneous reactions following contact with these marine organisms. It is the purpose of this paper, therefore, to call attention to an eruption which has been observed in 52 persons after contact with a hydroid of the genus Halecium.

The first case of this series was observed in June 1943, and subsequent cases have appeared sporadically since that time. The first patient seen had been swimming in the Pacific Ocean, in the vicinity of Honolulu, Oahu, Territory of Hawaii, and about five hours after leaving the water she noted a red "streak" down the lateral aspect of the left thigh, below the bathing suit area. This persisted, and when this person was examined the following morning the lesion was incorrectly diagnosed by me as the "sting" of a Portuguese man-of-war (jellyfish), which abounds in these waters. Two weeks later, however, the same person

1. Wade, H. W.: Post-Mortem Findings in Acute Jelly-Fish Poisoning with Sudden Death in Status Lymphaticus, J. Trop. Med. **31**:270, 1928. Allnutt, E. B.: The Effects of a Sting by a Poisonous Cœlenterate, J. Roy. Army M. Corps **46**:211, 1926.

2. Weidman, F. D.: Parasitic Dermatoses, in Osler, W.: The Principles and Practice of Medicine, ed. 12, revised by T. McCrae, New York, D. Appleton-Century Company, Inc., 1935, vol. 10, p. 214.

3. Sutton, R. L., and Sutton, R. L., Jr.: Diseases of the Skin, ed. 10, St. Louis, C. V. Mosby Company, 1939, p. 1304.

returned, with a similar acute urticarial eruption involving the left side of the face. Once again she had been swimming but this time was certain that she had not come in contact with a Portuguese man-of-war; however, she recalled brushing her face along the side of a raft which was anchored at that beach and used by many swimmers as a sun deck. When, in the next few weeks, several officers appeared who had been swimming at the same beach area and when it was found that they too had climbed aboard this raft and subsequently a rash had developed, it finally became evident that some factor other than the Portuguese man-of-war must be considered as the etiologic agent.

Two types of lesions have been seen in the group of patients who presented themselves for treatment: (1) a rapidly developing urticarial eruption, which was observed within a matter of a few minutes to an hour or two after contact with the marine animal, and (2) an erythematopapulohemorrhagic eruption having a zosteriform distribution, which appeared four to six or even as late as twelve hours after contact. In the latter the lesion either remained localized or was complicated by a generalized morbilliform toxicoderma, which came on, as a rule, four to twelve hours after the appearance of the primary rash. The following report of 3 characteristic cases will suffice to illustrate the typical findings; the remaining 49 cases will then be summarized to show the findings common to all.

REPORT OF CASES

Case 1.—L. J., a 31 year old white officer, was first seen in the receiving office of Tripler General Hospital at 7:30 p.m. on Jan. 25, 1945, at which time he complained of pain in the lower portions of the chest and upper part of the abdomen, nausea and chills. The patient stated that he had been swimming on the afternoon before coming to the hospital and that about 4 o'clock he had swum out to a raft to sun himself. He did not use the wooden ladder attached to the raft but climbed over the side and recalled that as he did this he was aware of a mild stinging sensation on his chest (which he scraped along the side in his efforts to clamber aboard), but this disappeared promptly and he thought no more of it. The patient stated further that about two weeks before the present episode he had had a similar localized eruption, which appeared after swimming at the same beach in similar circumstances. The former dermatitis disappeared after four or five days without any treatment; neither was it accompanied with any systemic reactions.

Examination revealed a moderately ill, apprehensive patient with a temperature of 101.2 F. There was spasm of the muscles of both upper quadrants of the abdomen, but the remainder of the physical examination revealed no significant abnormalities. The patient was admitted to the hospital for observation, and during the night chills and generalized abdominal pain developed and he had three liquid stools. The temperature increased to 102.4 F. There was no respiratory

embarrassment. About midnight a determatitis was noted which involved the lower portion of the chest and extended down over the costal margin (fig. 1). This dermatitis spread across the anterior aspect of the chest in a broad zoster-like band, about 8 inches (20 cm.) in width, and extended from one anterior axillary line to the other. This eruption consisted of well defined groups of erythematomaculopapular lesions, several groups being hemorrhagic in character. There were no vesicles present. In addition to this well defined local process there was a generalized morbilliform dermatitis, which involved the neck, chest, abdomen, shoulders, back and, to a lesser degree, the arms and legs, which appeared about

Fig. 1 (case 1).—Erythematopapular "zoster-like" eruption on the chest.

8 o'clock that morning. The palms, soles and mucous membranes were clear; there was no lymphadenopathy. By the second hospital day the generalized toxicoderma had entirely disappeared. The zoster-like lesions became more prominent on the second hospital day, but by the fourth hospital day they too had begun to show signs of involution and by the end of the eighth day had entirely disappeared except for areas of pigmentation present at the site of previous papules and hemorrhagic lesions. The temperature, which had been 102.4 F. at the time of admission, had dropped to 100.1 F. on the following day and was normal by the third day and remained so for the rest of the

hospital period. The diarrhea, which was present during the first night of hospitalization, had disappeared after one day, and the stools were normal thereafter. The patient's appetite was normal, and the malaise, fever and chills that he suffered had completely disappeared by the second day of hospitalization.

The white blood cell count taken at time of admission showed 22,350 white blood cells, with a differential count of 95 per cent neutrophils, 1 lymphocyte and 4 monocytes. The following day, there were 13,000 white blood cells, with 81 per cent neutrophils, 17 per cent lymphocytes and 2 per cent eosinophils. By the third day this dropped to 9,950, with a normal differential count, but there were 6 per cent eosinophils present, and on the fifth hospital day, the white blood cell count dropped to 9,200, with 2 per cent eosinophils. The erythrocyte sedimentation rate, taken the day following the patient's admission to the hospital, showed a rate of 38 mm. in sixty minutes (normal: 8 to 12 mm.). Bleeding and clotting time and blood chemistry were normal. Three daily examinations of stools showed no ova or parasites. Results of urinalysis were normal, and serologic tests for syphilis elicited negative reactions.

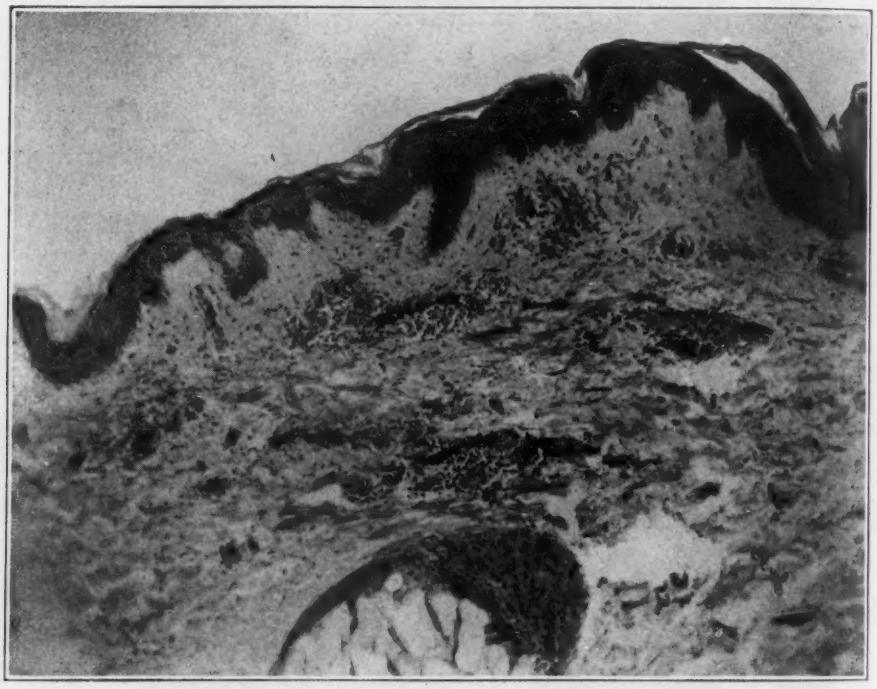

Fig. 2 (case 1).—Photomicrograph (× 20) showing acute nonspecific type of dermatitis.

Histologic examination was made from a section of skin taken from an erythematopapular lesion on the left side of the chest. This revealed a picture of a nonspecific, superficial type of acute dermatitis (fig. 2). The only significant finding was that of a fairly large number of eosinophils in the papillary portion of the corium. There were no foreign bodies found in serial sections nor any alteration resembling foreign body reaction.

CASE 2.—I. P., a 23 year old white soldier, was referred to the dermatology dispensary of Tripler General Hospital on May 18, 1945, complaining of a rash which involved his abdomen. The patient stated that he noted "hives" which developed on his abdomen about half an hour after he had been sunning himself on a raft while ocean bathing. He had not been aware of any stings or bites. Examination revealed an acute erythematous urticarial eruption (fig. 3) which involved the skin from the xiphoid process of the sternum to the umbilicus. The lesions consisted of various-sized wheals from 1 to 5 cm. in diameter. By the following day the lesions had become pale and less turgid, and by the third day they had nearly completely disappeared, with only a slight erythema remaining.

Fig. 3 (case 2).—Acute urticarial type of dermatitis.

The remainder of the skin and mucous membranes showed no eruptions. The temperature was normal, and the patient had no systemic reaction. The only significant laboratory finding was a 7 per cent eosinophilia. The white cell count varied from 9,150 to 9,450; the eosinophilia had dropped to 2 per cent by the third day.

CASE 3.—B. A., a 42 year old white officer, was referred from the otolaryngology department of Tripler General Hospital on May 26, 1945, complaining of itching and swelling of his right eye which had been present since the night before. Questioning revealed that this officer had been ocean bathing the evening before he came to this hospital and recalled clinging to a swimming raft and resting his head against the side of it. Shortly after this, he noted that his right eye

began to "sting" and "burn," and four hours later his eye began to swell and the upper lid felt thick and swollen.

Examination revealed an acute dermatitis (fig. 4) involving the lateral canthus and both eyelids of the right eye. The skin was edematous, and there was a group of eight or ten small, tense vesicles present below the brow. The remainder of the physical examination and laboratory studies showed no abnormalities.

In addition to the aforementioned cases 49 others were seen in which the conditions were strikingly similar to those presented. In each instance the person had been swimming in the ocean, and all had

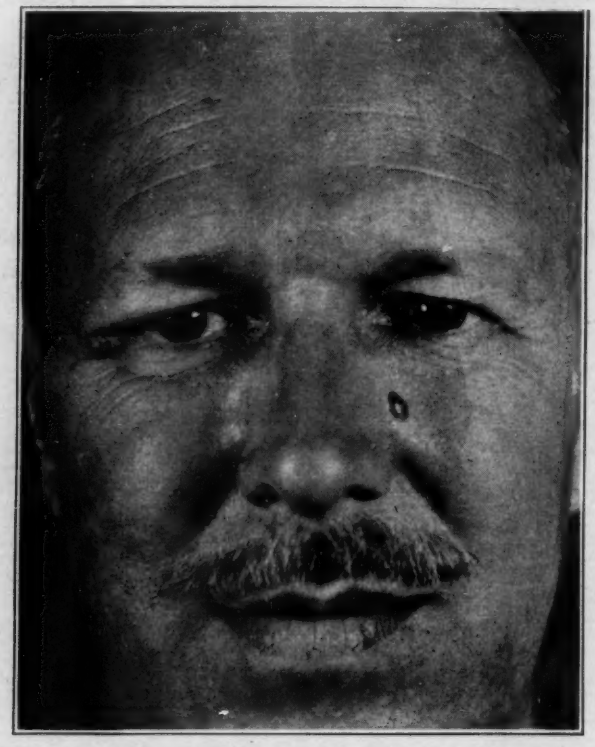

Fig. 4 (case 3).—Vesicular eruption involving the right lower eyelid at the lateral canthus.

used the swimming raft, either clinging to its side or climbing on top of it. In 25 of the group an acute urticarial type of eruption developed, which came on from thirty minutes to four hours after exposure, whereas in the remaining 24 persons a zoster-like eruption developed, which required from four hours to twelve hours to make its appearance. The eruptions appeared most commonly (27 cases) on the abdomen (this probably was due to the fact that this portion of the anatomy came in closest contact with the lower edges of the wooden raft when these persons were resting against it), the chest was involved in 14

cases and the dorsum of the hands and interdigital spaces and arms in 3 cases. In 1 of these 3 cases the patient had been directed to scrape the sides of the raft in order to remove the marine growth there. An acute erythematopapular eruption developed on the hands and arms, which came on within an hour after this work and which persisted a week. This suggests the possibility that shipyard workers may be exposed to similar hazards in the process of cleaning hulls of ocean-going ships. The face was affected in 1 person, the thighs in 2 and the lateral surface of the feet in 2 others. In 15 cases studies of the blood were made; eosinophilia, ranging from 4 to 16 per cent, was a common finding, with normal to moderate increase in white blood cells. In all cases the dermatitis was of a temporary nature, and even the severest reaction disappeared in ten days. Of the group with urticarial lesions, none showed the widespread morbilliform eruption. Of the 24 patients exhibiting the erythematopapular type of reaction, in 6 a complicating generalized toxicoderma developed. Of the latter, 2 definitely had had previous localized contact dermatitis after contact with Halecium; 1 other person (fig. 5) stated that a similar eruption had developed about six years before, while he was swimming in the Atlantic Ocean, in Long Island Sound. These 3 (including case 1, described before) suggest the possibility of previous contact as a factor in sensitization, thereby rendering the person more susceptible to the toxic substance produced by the marine animal.

INVESTIGATION

The characteristic history obtained from each person and the fact that all of them had contracted this dermatosis while swimming in the Pacific Ocean and within the confines of an area of a beach set aside for military personnel indicated that a common agent was responsible. The condition in the first case, which had been seen more than two years ago, was mistaken by me for the eruption following contact with a Portuguese man-of-war, but further studies indicated that the findings were not consistent with that type of dermatitis. The sting of a jellyfish is characterized by immediate, severe pain, and oftener than not the victim will see the offender. A search for other marine fauna was therefore made. The large wooden raft, anchored 100 yards (91.4 meters) or so from the shore, which these persons were using was examined, and on it were found several species of marine organisms, studied and tentatively identified by C. H. Edmondson.[4] "Patch tests" were made by placing the living organisms on the skin of previously affected as well as of control persons. In addition, the canvas which covered the top of the raft as well as the

4. Edmondson, C. H.: Personal communication to the author.

wood itself was applied to the skin of 3 volunteers. That some photosensitizing agent present in algae or seaweed might be a possible factor was also considered, and this material was applied to the skin of 3 subjects, who were then exposed to the sunlight. Of these several tests, in only one group was there any reaction noted, and this was in 3 persons who had a type of hydroid (later tentatively identified as a species of Halecium) placed on their skin. The type of reaction (fig. 6)

Fig 5.—Erythematopapular lesions with faint morbilliform eruption on the abdomen.

in each instance was similar to the lesions seen in the accidentally incurred cases that had been seen in the clinic. Following this presumptive evidence a careful search of the locality was made, and colonies of this organism were found growing in abundance on the portion of the raft which was submerged in the water, piles along the shoreline and below the waterline on the hulls of several small boats which were anchored in the water. Test blocks (used by zoologists to study marine flora and fauna) placed in the sea at remote places of the island by

C. H. Edmondson showed other members of the genus Halecium closely related if not identical with the species found on the swimming raft. The raft was removed from the water, and during this period no new cases were seen; it was then returned, and after about three weeks new cases began to appear. The raft was examined again after this interval, and at first only small colonies of the organisms were found but on a later investigation it was found that they had grown ½ to 1 inch (1.2 to 2.5 cm.) in length. Further evidence that these hydroids were the etiologic factor was shown by the following data: For a period of two or three weeks after the raft had been carefully scraped no dermatoses were seen, and in this period examination of

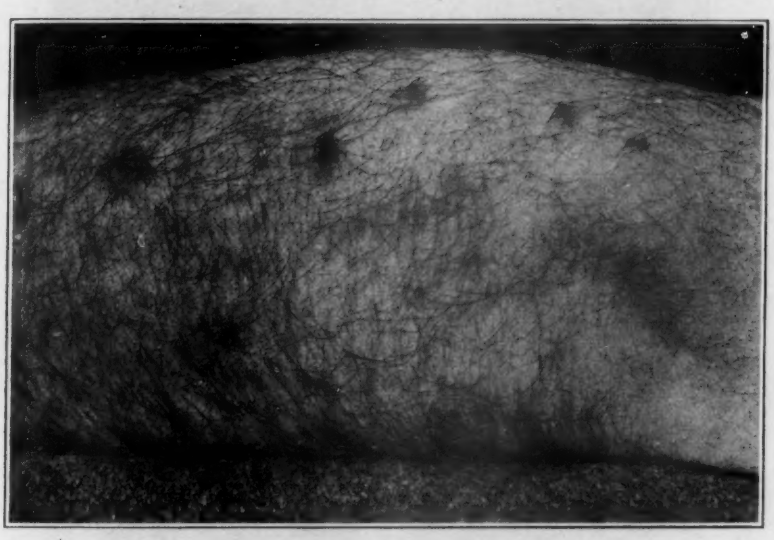

Fig. 6.—Erythematous eruption following experimental application of Halecium to forearm.

the raft showed no colonial growth. However, after this time had elapsed, cases again came to our attention and once more an abundant growth of the Halecium was found. Finally, conclusive evidence that the hydroid Halecium was capable of producing dermatitis was established by careful removal of an entire colony and application of this directly to skin moistened with sea water. An acute urticarial dermatitis developed at this site in one hour.

CLASSIFICATION AND CHARACTERISTICS

Halecium is a colonial hydroid belonging to the phylum of the Coelenterata, classified as follows:

Phylum — Coelenterata
Order — Hydroida
Family — Halecidae
Genus — Halecium
Species — ? (beani?)

It is a fixed aquatic animal which may be found in cold water as well as in tropical ocean waters; free-swimming adult forms are not found (though larvae are mobile). This colorless animal attaches itself to other marine life as well as to inanimate objects. This species of Halecium (tentatively classified as beani) grows from 2 to 5 inches (5 to 12.7 cm.) in length, being considerably smaller than the jellyfish and other members of the phylum. Its habitat is widespread. Personal communication from C. McLean Fraser [5] disclosed that the "Halecium beani is a cosmopolitan organism which has been found from San

Fig. 7.—Living colony of mature Halecium (about twice the normal size) removed from test blocks. This species is similar to that known to produce dermatitis.

Francisco to St. Elena and from Ecuador to the Galapagos." Fraser stated further that he was aware of "skin irritation developing in a Javanese fisherman who came in contact with the Lytocarpus phillipinus, a related hydroid." Halecium is found in large numbers in the Woods Hole area in Massachusetts.[6]

5. Fraser, C. M.: Personal communication to the author.

6. Nutting, C. C.: The Hydroids of the Woods Hole Region, Contributions from the Biological Laboratory of the United States Fish Commission, Woods Hole, Mass., Washington, D. C., Government Printing Office, 1901, p. 358.

Coelenterates have two characteristics in common: One is the presence of a celom (body cavity), and the other is the possession of tentacles (fig. 8), on which are stinging cells (nematocysts; fig. 9). The latter are highly specialized organs lining the tentacles of the animal, which are capable of producing minute quantities of a toxic material (possibly related to formic acid). The sting is produced by innumerable nematocysts, from which barbs are thrust into the intruding animal when the trigger-like mechanism is disturbed. The sting

Fig. 8.—Photomicrograph (× 74) of a living specimen, showing hydranths with extended tentacles.

from the larger members of the family (jellyfish) may produce a severe local reaction, with profound pain, which imparts a sense of impending disaster and fear, flushing of the skin, spasm or paralysis of the respiratory muscles, shock and even death of its victim. Treatment of these serious reactions (as recorded in the literature) has been satisfactorily accomplished in certain instances by the use of 7½ grains (0.48 Gm.) of calcium gluconate given intravenously and repeated if necessary.

The management of the patients in the cases described in this paper presented no particular problem once the disease was recognized. Mild antipruritic agents and soothing preparations usually controlled the symptoms referable to the skin. Calcium gluconate seemed to have a beneficial effect on the muscle spasm when it was present, but it had no appreciable effect on the cutaneous eruption.

Fig. 9.—Photomicrograph (× 600) of a fixed specimen, showing portions of four tentacles lined with nematocysts (stinging cells).

SUMMARY AND CONCLUSIONS

1. That a dermatitis can be produced by contact with the small marine animal of the genus Halecium seems reasonable, and a series of 52 cases is herein reported.

2. The reactions are for the most part local in character but occasionally may be generalized and accompanied with moderate systemic reactions, the latter resulting possibly from former sensitization.

3. Dermatoses resulting from contact with Halecium are probably uncommon. The unique conditions present in this series have made this dermatosis appear in far greater frequency than might ordinarily be expected.

C. H. Edmondson, Zoologist, Bishop Museum, Honolulu, Territory of Hawaii, gave time and invaluable aid in collecting marine specimens and identifying the organisms.

The photomicrographs were made by Irvin L. Tilden, M.D., pathologist at the clinic, Honolulu, Territory of Hawaii. The clinical photographs were prepared by First Lieutenant David D. Peters, Sanitary Corps, Army of the United States, Clinical Photography Office, Tripler General Hospital. Captain Norris L. Brookens, Medical Corps, Army of the United States, gathered specimens of hydroids which were later identified to be Halecium. Captain J. F. McKenney, chief of the outpatient clinic, gave considerable aid by recognizing many of the eruptions and referring the patients to the dermatology clinic for observation.

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VEHICLES IN TOPICAL DERMATOLOGIC THERAPY

Their Functions and Physicochemical Characteristics

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(Continued from Page 513)

IV. FUNCTIONS OF VEHICLES

B. Penetration Into and Through the Skin.—In general studies of topical, dermatologic therapy, penetration of the skin has probably been given more consideration than any other single factor. Even though intact skin excludes most substances, there can be little doubt that certain substances can penetrate the skin. Considerable evidence, which includes the detection of a substance in the urine and the observation of systemic effects from the substance, proves that such materials as iodine, hormones, vitamins and essential oils can penetrate the intact, normal, human skin. Eller and Wolff [9] present a good bibliography on this phase of the penetration problem. Local allergic reactions have been observed to the placing on the skin of an allergen incorporated in petrolatum [10] or in a "penetrating" vehicle.[11]

When systemic effects are observed from an externally applied material, there must have been penetration of the material or some part of it completely through the skin and into the blood stream. But in topical, dermatologic therapy it may be that it is not always necessary or desirable to effect penetration completely through the skin. In some cases, perhaps surface action is all that is desired, and it will be advisable to try to choose a vehicle which will not penetrate the skin. In other cases, it may be necessary to penetrate only the stratum corneum to accomplish the desired effect of the drug. Assume, for instance,

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From the Department of Dermatology, Harvard Medical School, and Massachusetts General Hospital.

9. Eller, J. J., and Wolff, S.: Permeability and Absorptivity of the Skin, Arch. Dermat. & Syph. **40**:900-923 (Dec.) 1939.

10. Walzer, A.: Cutaneous Absorption: I. A Direct Technic for Demonstrating the Percutaneous Absorption of Antigens, Arch. Dermat. & Syph. **41**: 692-698 (April) 1940.

11. Hermann, F.; Sulzberger, M. B., and Baer, R. L.: Penetration of Allergens into the Human Skin, New York State J. Med. **44**:2452-2459 (Nov. 15) 1944.

that dermatomycosis is being treated. The fungus in this condition is usually no deeper than the stratum corneum. In order to kill the fungus, it may be necessary to cause the fungicide to go only into the stratum corneum.

There are, nevertheless, many points which must be discussed whether penetration of the entire skin or penetration of only a part of it is being considered. What is the avenue of penetration? Do substances go directly through the keratinized cells of the stratum corneum or between these cells? Or do substances first enter the openings of the hair follicles or sweat or sebaceous glands and then penetrate the linings of the follicles and glands? Can dialysis occur through the intact living skin? Do osmotic forces effect transfer of fluids through the skin? Rothman [12] published a review of the subject of percutaneous absorption in 1929 which he supplemented with a later review in 1943.[13] There have been many important papers published on various aspects of this subject, only a few of which will be cited here.

1. Physical and Chemical Characteristics of the Skin: Before discussing penetration of the skin it will be advisable to review briefly some of the physical and chemical characteristics of the skin. A more complete review was published recently by us.[14] The surface of the skin is irregular. Structurally the hairs and hair follicles produce small annular indentations in the skin surface. The outer surface of this indentation is formed by an invagination of the epidermis; the inner surface is the hair itself. Since some of the sebaceous glands open into the hair follicles, the surfaces of the follicles and hairs are coated with sebaceous materials, just as is the surface of the skin. The various layers of the epidermis become thin as the bottom of the follicle is reached, and they appear to merge into a single layer only a few cells thick. Even though the sweat gland has an excretory function, the sweat duct must be considered a possible portal of entry into the skin, particularly for aqueous solutions. The sweat duct opens directly onto the surface of the skin, and if there is a lining of the duct in the upper layers of the skin it is thin.

Perutz and Lustig [15] have pointed out that the fatty film which covers the cutaneous surface is a more or less uniform layer of lipids

12. Rothman, S.: Resorption durch die Haut, in Bethe, A.; von Bergmann, G.; Embden, G., and Ellinger, A.: Handbuch der normalen und pathologischen Physiologie, Berlin, Julius Springer, 1929, vol. 4, pp. 107-151.

13. Rothman, S.: The Principles of Percutaneous Absorption, J. Lab. & Clin. Med. **28**:1305-1321 (Aug.) 1943.

14. Lane, C. G., and Blank, I. H.: Cutaneous Detergents, J. A. M. A. **118**: 804-817 (March 7) 1942.

15. Perutz, A., and Lustig, B.: Ueber den physikalisich-chemischen Zustand des Fettes der Hautoberfläche, Dermat. Wchnschr. **97**:1016-1017 (July) 1933.

containing some cells but no crystals or water; occasionally two fat phases can be detected but no emulsion is present. The fatty film may contain various types of lipids. In comparison with the fats of the lower layers of the skin, it contains less fatty acid esters of glycerine and more esters of the high molecular weight, monohydric alcohols (cholesterol esters and waxes). It contains a higher percentage of unsaponifiable substances (cholesterol and other alcohols) and more phospholipids. Apparently some oxidation of the cholesterol has taken place to produce "oxycholesterol," which is a mixture of various oxidation products including an ether, a dihydric alcohol and a dicarboxylic acid. Reviews on the subject of lipids of the skin have been published by Rothman [16] and Kooyman.[17] An investigation of the lipids of steer skin, some of the conclusions of which are probably applicable to human skin, has been reported by Koppenhoeffer.[18] A major difference between the characteristics of the mixture of lipids in the deeper layers of the skin and the lipids on the surface is the greater ease with which water can be mixed with the surface lipids. This apparently results from the presence in the surface lipids of oxycholesterol, cholesterol esters and phospholipids, each of which contains polar groups [19] and is therefore hydrophilic. Any vehicle which penetrates the skin must first penetrate this fatty film except possibly when its avenue of penetration is the sweat duct and gland.

On some areas of skin an aqueous film may be present on top of the fatty film most of the time. This is true primarily of the areas rich in sweat glands and from which the sweat does not evaporate quickly because of close contact with other areas of skin or contact with an occlusive type of clothing. The axillas, soles and interdigital surfaces are examples of such areas.

The surface of abnormal skin has varying characteristics depending on the type of lesion present. In general, however, it will be either "dry" or "moist." When the lesion has a dry surface, as in ichthyosis, it is probable that the fatty film remains as the limiting boundary and that this will be the first material with which an externally applied substance will come into contact. If the lesion is moist—i. e., part of the surface layers of the skin may have been destroyed with the resultant exudation of serum, as in impetigo—an externally applied substance will then come into contact first with an aqueous film rather than a fatty film.

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16. Rothman, S.: Die Hautfette, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 1, pt. 2, pp. 232-268.

17. Kooyman, D. J.: Lipids of the Skin, Arch. Dermat. & Syph. **25**:245-255 (Feb.) 1932.

18. Koppenhoeffer, R. M.: The Distribution of Lipids in Fresh Steer Skin, J. Biol. Chem. **116**:321-341 (Nov.) 1936.

19. Polar groups are discussed in section III C.

2. Wetting the Skin: Before any substance can penetrate the skin it must be brought into actual contact with the cutaneous surface. For man, the normal environment of the skin is air, and, fortunately perhaps, water does not easily make contact with the skin. Water cannot be spread with a cotton swab as an even film over the normal skin of the volar surface of the forearm. If the hands are dipped into water and withdrawn, the water film on the dorsa of the hands immediately breaks into droplets leaving many dry areas. The water has been unable to wet many areas of the normal skin. If, however, a drop of mineral oil is placed on the volar surface of the forearm, it spontaneously spreads into a film. Oily vehicles wet areas of normal skin which are covered with a natural lipid film; aqueous vehicles do not wet such a surface. Wetting is a surface phenomenon and should be distinguished from penetration.

In order for a vehicle to spread spontaneously over any surface, the interfacial tension [20] between the vehicle and the surface must be low. The addition of a wetting agent to water lowers the surface tension of water and most probably will lower the interfacial tension between water and the surface of normal skin. Aqueous solutions of wetting agents, such as soaps, sulfated alcohols and sulfated oils, spontaneously spread as a continuous film over the surface of normal skin.

Since the interfacial tension between most oils and the cutaneous surface is apparently low enough to permit spontaneous spreading of the oil on the skin, addition of wetting agents to such vehicles is not required in order to cause these vehicles to wet the skin. If it is desired to spread an oily vehicle on a moist area, possibly a wetting agent might be used to aid in establishing contact in such a situation.

In general, so far as wetting the skin is concerned, an oil in water emulsion, a shake lotion and a gel of a hydrophilic colloid will all wet the skin like water; a water in oil emulsion and a paste will act like an oil. The ability of an organic solvent to wet the skin will be a specific property of each solvent.

Wetting agents are used in emulsion type vehicles, such as vanishing creams, to act as emulsifying agents. For this purpose they lower the interfacial tension between the aqueous and the oily phase of the vehicle. In the case of an oil in water emulsion, the wetting agent may also aid in getting the external phase of the vehicle, i. e., water, into contact with the normal oily cutaneous surface. In a water in oil type of emulsion, when oil is the external phase, the wetting agent is not needed to bring about contact between the oil and the skin. Therefore the use of wetting agents in emulsion type vehicles aids in the preparation of the emulsion and possibly in bringing an oil in water emulsion in

20. Interfacial tension is discussed in section III C.

contact with the skin, but if it accelerates the penetration of the vehicle, as has been claimed by such investigators as Duemling [5] and Strakosch,[2] the mechanism whereby this acceleration occurs is not yet clear.

3. Penetration of Water and Aqueous Solutions: Once surface contact is made by the externally applied material, penetration of the skin may occur. On intact skin, the lipid film must first be penetrated. Since sweat is able to penetrate this lipid film or pass through "holes" in the film, it seems probable that water and aqueous solutions may also penetrate it in the reverse direction. The hydrophilic nature of some of the lipids in this film no doubt makes penetration of water and aqueous solutions possible.

The penetrating material next meets the stratum corneum, which is made of dead, keratinized, partially dehydrated epithelial cells. They are composed primarily of the protein keratin, but since they are derived from the cells of the stratum germinativum, they also contain some lipids, carbohydrates and inorganic salts (Rothman and Schaaf [21]). The percentage composition of these substances will of course be higher than for most normal living tissues because the water content is much lower.

Keratin is a protein which is resistant to the action of many substances. It is insoluble in water, alcohol, ether, weak acids and salt solutions. It is somewhat soluble in concentrated acids and phenols. It dissolves (probably subsequent to decomposition) in alkalis and alkaline sulfides. It is strongly hygroscopic. The amount of water which keratin will absorb (swelling) is dependent on the p_H of the solution in which it is placed. It takes up a minimum of water at its isoelectric point which, according to Wilkerson,[22] is at a p_H of 3.7.

Various determinations of the moisture content of the stratum corneum have shown it to contain from 7 to 20 per cent water. The deeper layers of the skin may contain more than 70 per cent water, and most body tissues nearly 80 per cent. When water comes in contact with the cells of the stratum corneum, these cells take up the water. This imbibition of water by the cells of the stratum corneum causes the skin to become macerated. The wrinkling of the normal palmar skin after the hands have been held in water for some time must be associated with a hydration and consequent swelling of the thick stratum corneum.

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21. Rothman, S., and Schaaf, F.: Chemie der Haut, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 1, pt. 2, pp. 161-378.

22. Wilkerson, V. A.: The Chemistry of the Human Epidermis: II. Isoelectric Points of the Stratum Corneum, Hair and Nails as Determined by Electrophoresis, J. Biol. Chem. **112**:329-335 (Dec.) 1935.

This hydration of the stratum corneum is probably primarily a hydration of the keratin of the cells and is therefore similar to the hydration and swelling of proteins, such as gelatin, which occur when many proteins are placed in aqueous solutions. The swelling of these proteins has received much study and has been found to be influenced by the temperature and the p_H of the solution and by the specific ions present. The investigations of Memschel [23] on the swelling of pieces of human finger nails and skin seem most nearly applicable to the problem under discussion. He investigated many factors, but only the results of his study on the effect of acids and alkalis will be discussed here. He found almost constant swelling between a p_H of 1 and a p_H of 7.8; for the range 7.8 to 11.5, there was a gradual increase in the swelling; from 11.5 to 13.5, there was a decided increase in the swelling. Lime water is frequently used as a compress in dermatologic therapy. The p_H of lime water is about 12.6. The difference in swelling brought about by a solution of p_H 12.6 as compared to one of p_H 4.5 (boric acid) should be given consideration when a compress is prescribed.

It is unlikely that the concentration of an electrolyte in an aqueous solution in contact with the cells of the stratum corneum will govern the passage of water into and out of these cells in the same way as it governs the passage of water into and out of living cells, such as erythrocytes. In the cells of the stratum corneum there is no membrane surrounding a fluid of a definite electrolyte content. One should not, therefore, think of an 0.85 per cent sodium chloride solution as isotonic so far as the cells of the stratum corneum are concerned—i. e., water will not pass from a salt solution into these cells when the salt content is less than 0.85 per cent and out of these cells when the salt content is greater than 0.85 per cent. Actually the salt conent of a solution into which the hand is placed must be much greater than 0.85 per cent in order to prevent wrinkling of the palmar skin, a phenomenon which we have stated is probably caused by the passing of water into the stratum corneum.

It is thus seen that water may penetrate the lipid film and the stratum corneum fairly easily. But there is evidence that little water, if any, can be made to pass entirely through the normal skin and into the underlying tissues. Rothman [12] feels that the skin does not permit the passage of water because of the presence in the epidermis below the stratum corneum of a transition layer (Uebergangschicht), which layer has an acid p_H on the side toward the surface of the skin and an alkaline p_H on the side underneath. If these conditions are able to maintain the proteins of this layer at their isoelectric points, the proteins will

23. Memschel, H.: Zur Kolloidchemie und Pharmakologie der Keratinsubstanzen der menschlichen Haut, Arch. f. exper. Path. u. Pharmakol. **110**:1-45, 1925.

be held at their points of minimum swelling and may act as a barrier to the passage of water through the skin.

The possible avenues of penetration of aqueous vehicles other than through or between the cells of the stratum corneum are (1) into the follicles and thence through the epidermis at the base of the follicle, (2) through the sebaceous glands or (3) through the sweat glands. The orifices of the hair follicles and gland ducts at the surface of the skin are small. The walls of the hair follicles and the sebaceous glands are covered with fatty material which may, at times, fill the follicles and the ducts. But even if the follicles and the ducts are not filled with fatty material, it would be extremely difficult to get an aqueous vehicle, which does not wet the walls of the follicle or duct, into these openings, in just the same way as it is difficult to make water flow into a capillary tube which is closed at one end or to make water penetrate a loosely woven fabric whose individual fibers are coated so that water does not wet their surfaces. Therefore, the spontaneous flow of water into the hair follicle or sebaceous gland seems unlikely. Addition of wetting agents to aqueous vehicles would make entrance into the hair follicles occur more easily.

The walls of the sweat ducts are not covered with a fatty material and are easily wet by aqueous vehicles. When aqueous solutions are held on the surface of the skin and the sweat ducts are active, the sweat ducts may fill completely with sweat, and eventually the sweat will make direct and continuous contact with the external aqueous solution. When such contact is made, the solute in the external solution can diffuse into the sweat duct, and it is possible that the solute might be able to pass through the walls of the sweat gland and thence into the body fluids. Abramson and Gorin [24] stated their belief that the sweat ducts are the portals of entry of the electrolytes under the action of an electric current.

If dialysis could occur through the skin, then appreciable quantities of electrolytes might pass from the body fluids into water in which the body or a portion of the body is placed. We know of no evidence that this occurs in excess of the normal electrolyte excretion from the sweat glands. Similarly, if a portion of the body should be placed in a strong solution of an electrolyte and dialysis occurred, then the electrolyte would pass from the solution into the body. This seems not to take place.

This entire discussion of the penetration of aqueous vehicles has considered the situation in which there is sufficient amount of the thera-

24. Abramson, H. A., and Gorin, M. H.: Skin Permeability, in Cold Spring Harbor Symposia on Quantitative Biology, Cold Spring Harbor, L. I., New York, The Biological Laboratory, 1940, vol. 8, pp. 272-279.

peutic material present so that evaporation of some of the water does not appreciably change the therapeutic material. This is true primarily for compresses and baths. When a small amount of an aqueous vehicle such as a shake lotion or a gel of a hydrophilic colloid is applied to the skin, the water of the vehicle quickly evaporates and only a powder and the dry drug are left on the skin. In this situation, of course, the general principles of penetration of aqueous solutions no longer apply.

4. Penetration of Nonaqueous Vehicles: It is so frequently stated that penetration is better from an oily vehicle than from an aqueous one that this has become a well accepted axiom of the dermatologist. A striking exception to this statement is found in the recently published work of MacKee, Sulzberger, Hermann and Baer,[25] who found better penetration from some aqueous vehicles than from some oily ones. Just as aqueous solutions of wetting agents enter the hair follicles more easily than does water alone because such solutions wet the skin better, so also might oils, which wet the skin better than does water, be expected to enter the hair follicles more easily. A comparison of the penetration of animal, vegetable and mineral fats into rabbit skin has been published by Eller and Wolff.[9] One might expect most of the oily vehicles to mix more easily and quickly with the lipid film on the surface of the skin than do aqueous vehicles. Drugs which are soluble in oily vehicles are more likely to dissolve in the oily cutaneous secretions than in the aqueous secretions.

Just how any substances dissolved in oily vehicles or the vehicles themselves penetrate farther than the lipid film on the surface and in the hair follicles is more difficult to explain. It has been pointed out that the water-soluble substances might enter the sweat ducts and subsequently penetrate the linings of the sweat glands. In a similar manner, the oil-soluble substances might enter the ducts of the sebaceous glands and subsequently penetrate the linings of these glands. Among the decomposition products of the stratum corneum are numerous lipid materials. It is possible that these materials are present in the intercellular spaces of the stratum corneum. Possibly oil-soluble substances might dissolve in this oily intercellular material and thus penetrate the stratum corneum. Since the tissues of the lower layers of the skin have an aqueous environment, substances which completely penetrate the skin must leave the oily medium in which they are dissolved and be taken up by the aqueous body fluids.

Penetration is thought to be better and more rapid when water-miscible oils, such as wool fat, are used, than when water-immiscible

25. MacKee, G. M.; Sulzberger, M. B.; Hermann, F., and Baer, R. L.: Histologic Studies of Percutaneous Penetration with Special Reference to the Effect of Vehicles, J. Invest. Dermat. **6**:43-61 (Feb.) 1945.

oils, such as petrolatum, are used. No satisfactory explanation of this is apparent to us. The water-miscible oils are more similar in their physicochemical properties to the natural skin lipids than are the water-immiscible oils. It may be that the actual penetration of these two types of oils is the same but that the water-miscible oils more easily give up any water-soluble drug which they contain to the underlying body fluids, and thus methods which measure penetration by detection of the drug in the body fluid (blood or urine) would indicate that the water-miscible oil had penetrated more rapidly.

There is no reason to believe that the addition of an inert powder to an oil to form a paste will alter penetration, if it is added in not too large amounts. If a large amount of the powder is used, the paste assumes some of the properties of a powder; some areas of the skin may be kept from contact with the oil of the paste because of the presence of the powder, and particles of the powder may plug the openings of the hair follicles and prevent any of the oily part of the paste from entering the follicles.

The essential oils, such as methyl salicylate, are seldom used as vehicles, but perhaps they should be mentioned here because of the evidence which has been presented by Macht [26] that these materials penetrate better than other oily materials.

The organic solvents are not frequently used as vehicles. Many of them are rather volatile and do not remain on the skin long enough to influence penetration. If a compress were made of some of these materials, such as alcohol or acetone, which are both water-miscible and oil-miscible, penetration might occur. They wet the skin well and mix easily with the sweat and the sebaceous secretions. Rothman [18] feels that the oil solvents promote penetration because they disrupt the lipid barriers in the cell membranes.

5. Penetration of Emulsions: Numerous investigators, among whom are Moncorps,[27] Strakosch [2] and Duemling,[5] have stated that better penetration is obtained from emulsions than from other types of commonly used vehicles. It is not at once apparent why this should be true. Dispersing one material in another would accelerate penetration of the dispersed material only if the particles of the dispersed phase become smaller than the smallest openings of the material being

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26. Macht, D. I.: The Absorption of Drugs and Poisons Through the Skin and Mucous Membranes, J. A. M. A. **110**:409-414 (Feb. 5) 1938.

27. Moncorps, C.: Untersuchungen über die Pharmakologie und Pharmakodynamik von Salben und salbeninkorporierten Medikamenten, Arch. f. exper. Path. u. Pharmakol. **141**:25-49, 1929; II. Ueber die Resorption und Pharmakodynamik der salbeninkorporierten Salizylsäure, ibid. **141**:50-66, 1929; III. Untersuchungen über die Resorption und Pharmakodynamik des salbeninkorporierten elementaren Schwefels, ibid. **141**:67-86, 1929.

penetrated. In emulsions used as vehicles, it is unlikely that the particles of the dispersed phase are smaller than the smallest "openings" in the skin. Also, in an oil in water emulsion, the water quickly evaporates, and the oily phase is left on the skin. Evaporation of water from a water in oil emulsion also occurs but at a slower rate. After evaporation of the water, the water-miscible oil remaining on the skin would not penetrate any better than that same oil would penetrate had it been applied without first having been prepared as an emulsion. The presence of an emulsifying agent in the oil after evaporation of the water may aid the oil in maintaining contact with the skin, particularly if an aqueous cutaneous fluid tends to accumulate at the cutaneous surface.

Certain external physical factors, such as increase in temperature and rubbing the skin, no doubt affect the penetration of all vehicles. Rubbing probably mixes the vehicle with the cutaneous secretions. It may mechanically force the vehicle into the hair follicles. Flexing of the skin, as occurs in the cubital and popliteal spaces, probably accelerates penetration. This flexing may cause a "pumping" action to occur in the skin, i. e., an alternate compression and relaxation of the follicles and sweat glands. The air may be forced from the follicles with compression, and subsequent relaxation may draw the vehicle into the follicle.

6. Summary:

Penetration of water and aqueous solutions.

(*a*) Water poorly wets the intact skin, but the addition of wetting agents to water makes it wet the skin easily.

(*b*) Water can penetrate the lipid film on the surface of the skin, and it is easily taken up by the stratum corneum (maceration). Water is not thought to penetrate the entire epidermis.

(*c*) The addition of wetting agents to water accelerates the entrance of water into the follicles and the gland orifices but is not known to accelerate its penetration of the entire epidermis.

(*d*) Electrolytes are not thought to penetrate the skin when aqueous solutions of these electrolytes are held on the cutaneous surface.

(*e*) A solution of sodium chloride must contain more than 0.85 Gm. per hundred cubic centimeters if water is to be prevented from passing from the solution into the cells of the stratum corneum.

Penetration of oily vehicles.

(*a*) Oily vehicles wet the intact cutaneous surface, and the addition of wetting agents is not known to facilitate this wetting.

(*b*) Oily vehicles penetrate the lipid film and seem to enter the hair follicles easily.

(*c*) Oily vehicles are not known to penetrate directly the stratum corneum.

(*d*) Essential oils have been said to penetrate the skin more rapidly than other oily vehicles.

(*e*) Penetration has been said to be more rapid from some emulsions of oils than from the oils themselves, but if this is correct, the mechanism of such penetration has not yet been satisfactorily explained.

(*f*) Rubbing the skin and increase in temperature probably accelerate the penetration of vehicles.

C. Alteration of Evaporation from the Cutaneous Surface.—Water is evaporating continually from the surface of the skin. It comes from the tissue itself or from the surface of the skin after excretion from the sweat duct. The rate of loss of insensible perspiration from the skin has been reviewed recently by Newburgh and Johnston.[28] Some vehicles decrease the amount of evaporation from the cutaneous surface while others increase it.

1. Decreased Evaporation: The importance of inhibition of normal evaporation by certain vehicles is often lost sight of. Water-immiscible oils, such as petrolatum, act as occlusive coverings for the skin and appreciably inhibit the evaporation of moisture, thus producing a feeling of warmth. The rate of loss of insensible perspiration is decreased so that cells of the stratum corneum do not dehydrate at as rapid a rate as normally.

The evaporation of sensible perspiration is also diminished. If appreciable sweat is secreted from the sweat glands when the skin is covered with a water-immiscible oil, it probably collects as droplets at the openings of the sweat ducts. It is unlikely to spread as a thin film between the skin and the oil covering. This statement is made as a deduction from the previous consideration of the wetting of the skin by water and by oil. The surface energy[29] of the oil-skin interface is smaller than the surface energy of the water-skin interface. Therefore, when there is an oily film covering the skin, the oil-skin interface will not be spontaneously displaced by a water-skin interface when sweat is secreted from the sweat glands. It seems probable then that any maceration which results subsequently to the covering of an area of skin with a water-immiscible oil is brought about by the prevention of loss of insensible perspiration rather than by any absorption of retained sensible perspiration. This might be thought of as "endogenous hydration of the epidermis." Collodions and water-immiscible oils are the most occlusive of the commonly used nonaqueous vehicles.

Covering an area of skin with an occlusive type of vehicle and thus inhibiting normal evaporation and causing maceration may produce

28. Newburgh, L. H., and Johnston, M. W.: The Insensible Loss of Water, Physiol. Rev. **22**:1-18 (Jan.) 1942.

29. Free surface energy is discussed in section III D.

favorable conditions for the growth of micro-organisms. The vehicles of less occlusive type or vehicles which tend to take up moisture from the skin, are probably preferable, therefore, for the treatment of diseases of the skin caused by the invasion of micro-organisms, such as impetigo and dermatomycosis.

Because of the presence of polar groups in the water-miscible oils and films of hydrophilic colloids, these vehicles permit the loss of water from the cutaneous surface and are less occlusive than the water-immiscible oils. Clinical experience indicates that the pastes of water-immiscible oils are less occlusive than the water-immiscible oils themselves. These pastes contain hydrophobic or hydrophilic powders. The mechanism whereby pastes permit the loss of water from the cutaneous surface is not at once apparent. The oil is the external phase which is in contact with the skin. If it also completely coats the powder particles, it is difficult to explain how moisture from the skin can get through the oil film in order to make contact with the powder particles and subsequently be taken up by the powder. Possibly in spreading on a film of paste the junction of the oil and powder particles may be broken, leaving a porous film through which moisture can escape.

The way in which a therapeutic material is applied to the skin and the amount used will influence the ability of the material to inhibit evaporation. Bandaging, which confines the vehicle, tends to inhibit evaporation. Adhesive tape is a relatively occlusive type of dressing.

2. Increased Evaporation: The evaporation of perspiration helps to regulate the temperature of the body. When easily volatile vehicles are used the amount of evaporation increases and cooling results. The cooling effect is one of the specific functions of vehicles, and this cooling effect is an important part of the antipruritic action of some therapeutic materials. The volatility of the vehicle, and hence its cooling effect, depends on its vapor pressure and its heat of vaporization.[30]

When a hydrophilic powder is placed on the cutaneous surface, sensible perspiration will wet the surface of the powder particles, and from this increased surface area moisture can evaporate at a more rapid rate than from the smaller surface of the unpowdered skin. In this way powder speeds the removal of sweat and has a slightly cooling effect. This would not be true of the hydrophobic powders, such as zinc stearate. On the other hand, excess powder may mechanically clog the sweat ducts and result in somewhat diminished sweat secretion and evaporation.

3. Summary:

(*a*) Water-immiscible oils, collodions and some types of bandages are occlusive vehicles, and they appreciably retard the evaporation of sensible and insensible perspiration.

30. Cooling of the skin by specific vehicles is discussed in section III B.

(*b*) Water-miscible oils and emulsions are less occlusive vehicles.

(*c*) Occlusive vehicles cause maceration of the skin because they retard the loss of insensible perspiration.

(*d*) The retardation of evaporation by occlusive dressings causes a feeling of warmth.

(*e*) Easily volatile vehicles, such as water and organic solvents, cool the skin because of greater evaporation from the cutaneous surface.

(*f*) The cooling effect helps to relieve pruritus.

(*g*) Powders may have a slightly cooling effect because they increase the surface from which evaporation may occur.

D. Emollient Action.—1. Aqueous Vehicles:

Water is seldom thought of as an emollient for the skin. Actually, if the skin is in contact with water for a long time, as in the case of a compress, it becomes "dry" after the compress is stopped. Under such conditions at least, water "dries" rather than "lubricates." On the other hand, it seems probable that the water occurring naturally in the skin does have some emollient action. The loss of water at a more rapid rate than it is being replaced from the under layers of the skin results in a feeling of dryness. The rate of water loss from the cutaneous surface is dependent on the humidity and the temperature of the environment.[28]

It is possible that an increased rate of water loss at low humidities is as much responsible for winter dryness and chapping as is a possible deficiency in sebum. The latter factor is usually considered to be the cause of "dry skin." Rothman and Felsher [31] have shown that the rate of water loss from a dry psoriatic patch is more rapid than from normal skin. A consideration of the emollient action of a vehicle, therefore, should take into account not only the ability of the vehicle to act as an emollient but also its ability to inhibit the evaporation of water from the skin. This property of vehicles has just been discussed in the previous section of this paper.

The mechanism by which excessive compressing causes the skin to become "dry" is obscure. Perhaps even though the lipid film on the surface of the skin is not easily removed by water, long time contact with water may remove part of it, thus leaving the skin less "oily." Certainly during compressing, evaporation of water from the surface is prevented. Not many of the compress solutions are likely to be hypertonic to the skin, so that they do not withdraw water by means of osmotic forces. A compress of saturated magnesium sulfate solution is a hypertonic solution which is sometimes used. Possibly with the removal of some of the sebaceous covering of the skin, the evaporation

31. Rothman, S., and Felsher, Z.: Insensible Perspiration and Keratinization Process, Proc. Soc. Exper. Biol. & Med. **56**:139-141 (June) 1944.

of the perspiration subsequent to compressing is more rapid, and drying results. In any event, water and aqueous solutions must be considered poor emollients.

The solutions of hydrophilic colloids (colloid baths and colloidal solutions of gums) are considered more "lubricating" than water itself. This may be due to the retention on the cutaneous surface of some of the small particles of the colloid which can act as a lubricant. These colloid particles, however, are usually strongly hydrophilic and may remove water from the skin more rapidly than it is normally lost. Under such conditions, a drying action would result. This is particularly true of some of the gels of the hydrophilic colloids, such as bentonite, which are often used specifically for their drying properties.

2. Oily Vehicles, Powders and Organic Solvents: The oils in water emulsions, such as the liquid type of hand lotions or the semisolid type of vanishing creams, are often used specifically for their emollient action. They act as emollients subsequent to the evaporation of the water contained in the vehicle. This leaves on the surface of the skin a film of water-miscible oil, which is a good lubricant. It does not, however, prevent the normal evaporation of moisture from the skin and therefore does not act as an emollient in this way. Under certain conditions, this is a distinct advantage. The vehicles which inhibit evaporation usually feel warm and uncomfortable. It would seem advisable, therefore, to obtain emollient action without the inhibition of the normal evaporation from the skin.

Since the water in the oil in water emulsion quickly evaporates from the cutaneous surface, the use of such an emulsion for lubricating the skin would seem to have very little advantage over the water-miscible oil itself, except that the use of the emulsion is a means of "diluting" the oil so that it will be easy to apply a thin film. When equal volumes of an oil in water emulsion and a water-miscible oil are spread over equal areas of skin, the actual amount of oil retained on the skin is less in the case of the emulsion.

The water in oil emulsions should have emollient actions similar to the oil in water emulsions and the water-miscible oils.

The water-immiscible oils, such as petrolatum and olive oil, act as good emollients both because of their lubricating properties and because they inhibit the evaporation of water from the surface of the skin. The disadvantage of such materials as emollients is that they make the skin feel uncomfortably oily and warm.

The collodions have no lubricating action, but they form an occlusive covering for the skin and inhibit evaporation of moisture. In this way they may be considered to have some emollient action.

The powders have a drying action, as has already been discussed, but some of the hydrophobic powders, such as zinc stearate, do not

remove much moisture from the skin. They are somewhat "greasy" and possibly have a slight emollient effect.

The organic solvents are often good fat solvents. If they are used to wash the skin (gasoline by mechanics, turpentine by painters), they remove much of the natural lipids and therefore dry the skin. If they are put on the skin in a vehicle and allowed to evaporate, as in a shake lotion containing alcohol, they cannot actually remove oils from the skin but they may redistribute these oils, i. e., the oils may be picked up from one part of the skin and deposited in another part, as is seen in the formation of a ring when an attempt is made to remove a grease spot from a fabric with a grease solvent. Few if any of the solvents themselves are good emollients.

3. Summary:

(*a*) A vehicle may have an emollient action on the skin either by retarding the evaporation of water from the cutaneous surface or by virtue of being an oily lubricant.

(*b*) Water-immiscible oils both retard evaporation and lubricate the skin.

(*c*) Water-miscible oils and emulsion type vehicles lubricate but do not prevent evaporation.

(*d*) Water as a vehicle neither lubricates nor retards evaporation.

(*e*) Excess use of compresses with an aqueous solution "dries" the skin.

(*f*) Hydrophilic colloids "dry" the skin by removing water from it.

(*g*) Accelerated evaporation of water from the cutaneous surface during periods of low environmental humidity (winter) may be as responsible for dry, fissured skins (chapped) as is a possible deficiency in sebum.

E. Protection of the Skin.—Protection of the skin is a minor function of the vehicles used for the treatment of most dermatoses. On the other hand, protection of the skin from external contactants may be an important function of vehicles in the prevention of dermatoses. Various ointments are used for protection against the ultraviolet radiation from the sun. The protective ointments have been used a great deal in recent years for the prevention of occupational dermatoses. At times drugs are incorporated into the protective ointments which will react chemically with the external contactants to render them nonirritating, but usually the vehicles offer the main source of protection. The composition of the vehicles is often determined by the specific purpose for which the ointments are to be used. The composition of many of these ointments has recently been reviewed by Schwartz.[32]

32. Schwartz, L.: Protective Ointments and Industrial Cleansers, M. Clin. North America **26**:1195-1212 (July) 1942.

It may be important to protect the skin from certain therapeutic procedures, as, for example, to prevent excessive maceration from long-continued use of compresses. Seldom is it necessary, however, to choose a vehicle for a therapeutic material primarily for its protective action.

The aqueous and easily volatile vehicles offer little protection of any kind because they remain on the skin for a short time only.

The oily, nonvolatile vehicles offer fairly good protection for everything except materials which are soluble in oil. In this case, the vehicles may actually bring the oil-soluble material in contact with the skin and hold it there. In case of a contact dermatitis from ragweed pollen, for instance, a film of petrolatum on the surface of the skin may serve to collect pollen grains from the air, dissolve out certain oil-soluble antigens from the pollen grains, and thus bring much more of the antigen into contact with the skin than would reach the skin if no film of petrolatum were present.

The water-miscible oils permit the penetration of both oily and aqueous substances. Therefore they offer less protection than do the water-immiscible oils which permit the penetration of only oily and oil-soluble substances.

The powders offer some protection. A skin covered by a hydrophobic powder is difficult to wet with an aqueous solution. All powders offer some protection because of their adsorbing ability.

An unbroken flexible collodion film offers more protection than any other commonly used type of vehicle.

F. Removal of Cutaneous Secretions.—One may question whether removal of cutaneous secretions can correctly be called a function of a vehicle. It is likely that a physician seldom chooses a vehicle solely because of its specific ability to remove cutaneous secretions. This is more correctly a function of detergents, a review of which has recently been published by us.[14] Whether or not it is proper to speak of this property of a vehicle as a function, nevertheless, the vehicles do accelerate or retard the removal of secretions, and therefore this factor should be given consideration when a vehicle is chosen.

The retardation of the removal of water by vehicles which inhibit evaporation has been discussed.

In addition to water, sweat contains small amounts of water-soluble substances. These will be removed better by the aqueous vehicles than by the oily ones. The water-miscible oils, when used as vehicles, will take up the watery secretions from the skin. The sebaceous secretions will be removed best by oily vehicles. These secretions are poorly soluble in water and will be removed to some extent by aqueous vehicles.

Of course, complete removal is not accomplished until the vehicle with the cutaneous secretion is entirely removed from the skin. In this

connection, the ease of removal of the vehicle from the skin is important. The aqueous vehicles can be easily removed from the skin, but the oily vehicles are often more difficult to remove. Under certain conditions, it may not be advisable to attempt complete removal of a vehicle with its medicament, but when this is desirable, some alteration of the vehicle may be necessary to insure its complete removal. Mechanical removal of the oils, i. e., wiping them off, is never complete. Some of the water-immiscible oils are difficult to remove even with soap and water, and it may not be desirable to use soap on the skin. Even though the oil may be water-miscible, it does not necessarily follow that it can be easily removed from the skin with water alone. A distinction should be made between water miscibility and easy washability. There are cutaneous conditions for which it is advisable to use an oily vehicle which is not only water miscible but which subsequently can be washed from the skin easily with water alone.

The powders undoubtedly remove some of the secretions by adsorption but, so far as we are aware, no detailed study has been made of adsorption of the secretions by the powders when they are used as vehicles.

The organic solvents will remove some secretions. This removal will depend on the properties of the specific solvent being used and the way it is used.

The collodions probably remove neither the aqueous nor the oily secretions.

CONCLUSION

In the preparation of this critical review of the functions of vehicles in topical dermatologic therapy, we are quite conscious of the fact that some of the material presented is still theoretic. Scientific data are lacking to substantiate many clinical observations. If this review serves to organize clinical impressions and to stimulate scientific investigations of this complex subject, it will have served its purpose.

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ANGIOMAS OF THE SCROTUM (ANGIOKERATOMA, FORDYCE)

Compilation of Cases and Discussion of Nomenclature

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SINCE Fordyce,[1] in 1896, first described a case of "angiokeratoma of the scrotum," a state of confusion has existed in the classification and the nomenclature of this dermatosis. The confusion in nomenclature between angiokeratoma of the scrotum (Fordyce) and angiokeratoma (Mibelli[2]) was first recognized and discussed by Hudelo[3] and later by Wile and Belote.[4] Hudelo, in 1925, was the first investigator to stress the fact that a definite differentiation must be made between Mibelli's angiokeratoma, occurring on the extensor surfaces of the extremities associated with a history of pernio, and Fordyce's angiokeratoma or angiomas, occurring on the scrotum in subjects without a history of pernio. Wile and Belote,[4] in 1928, stated that Fordyce's angiokeratoma was a disease entirely different from true angiokeratoma of Mibelli. These authors also discussed the similarity of the histologic pictures of senile angiomas and angiomas of the scrotum and differentiated these two diseases from the histologic picture of angiokeratoma of Mibelli. Traub and Tolmach,[5] on the other hand, in 1931, stated the belief that "cases [of angiokeratoma] that are dissimilar in location and etiology, but that are identical histologically, must be included [in the classification of angiokeratoma] as true but atypical cases, and should be designated as angiokeratoma without pernio (Fordyce)." It is of interest to note that authors[6] who later wrote on the subject suggested that the term "angiomas of the scrotum" be used to designate

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1. Fordyce, J.: Angiokeratoma of the Scrotum, J. Cutan. Dis. **14**:81, 1896.

2. Mibelli: Una nuova forma di cheratosi, "angiokeratoma," Gior. ital. d. mal. ven. **30**:285, 1889.

3. Hudelo, Caillaud and Chabrun: Angiokératomes type Mibelli, Bull. Soc. franç. de dermat. et syph. **32**:208, 1925.

4. Wile, U. J., and Belote, G. H.: Angiokeratoma: A Confused Clinical and Pathologic Picture, Arch. Dermat. & Syph. **18**:501 (Oct.) 1928.

5. Traub, E. F., and Tolmach, J. A.: Angiokeratoma, Arch. Dermat. & Syph. **24**:39 (July) 1931.

6. Hudelo, Caillaud and Chabrun.[3] Wile and Belote.[4]

such cases as that described by Fordyce. Investigators, nevertheless, still continue to report, in current literature [7] and before dermatologic societies,[8] cases of angiomatous lesions of the scrotum under the term "angiokeratoma" and thus propagate the confusion in nomenclature.

It is the purpose of this article to report a case of angiomas of the scrotum, a dermatosis usually reported under the term "angiokeratoma (Fordyce)." A compilation of cases and a discussion of the histopathologic aspects, the differential diagnosis and the nomenclature of

Fig. 1.—Angiomas of the scrotum.

the disease are given in an effort to clarify further and differentiate this dermatosis from angiokeratoma of Mibelli.

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7. (*a*) Serra, J. B.; d'Angelo, J. M., and Castane Decoud, A.: Angioqueratoma del escroto, Rev. argent. dermatosif. **26**:1218, 1942. (*b*) Aguilera, C., and Oyamburu, L.: Angiokeratoma of Scrotum, Actas dermo-sif. **31**:438, 1940. (*c*) Perpignano, G.: Un casode Angiocheratoma of del Mibelli, Gior. ital. di dermat. e sif. **81**:1003, 1940.

8. (*a*) Parounagian, M. B.: Angiokeratoma of Scrotum, Arch. Dermat. & Syph. **33**:598 (March) 1936. (*b*) Sweitzer, S. E.: Angiokeratoma of the Scrotum, ibid. **45**:625 (March) 1942. (*c*) Corson, E. F.: Angiokeratoma (Fordyce), ibid. **49**:202 (March) 1944.

REPORT OF A CASE

L. C., a white man aged 59, was first seen in May 1945 because of a monilial infection of the perianal region. During the course of the routine dermatologic examination, numerous small discrete nodules, from the size of a pinpoint to that of a pinhead, were noted along the course of the veins and capillaries of the scrotum. The lesions were soft to touch and appeared dusky pink to deep purple. Small and large patches of leukoderma were present on the hands, the abdomen and the scrotum. The history revealed that the patient first noticed the lesions on the scrotum about ten years previously. He picked one of the nodules, and a small hemorrhage ensued that lasted for about one hour. There was a past history of hypertension and chronic cough of over ten years' duration. Three years prior to the examination the patient had pneumonia associated with an intense cough that resulted in dilatation of the superficial abdominal veins. In 1939 the patient received surgical treatment for nephrolithiasis of the right kidney. Seizures of

Fig. 2.—Angiomas of the scrotum photographed with infra-red film. The angiomas and capillaries filled with venous blood appear prominent.

severe coughing at that time produced an incisional hernia that has gradually increased in size. The physical examination revealed no evidence of varicocele, tumor of the testis or inguinal hernia.

The laboratory examinations included a serologic test for syphilis, which was negative, a blood count, which was normal, and a urinalysis, the results of which were within normal limits.

A histopathologic examination was made of sections of one small scrotal tumor; the sections had been stained with hematoxylin and eosin and Weigert's elastic tissue stain. The epidermis was normal. In the upper layers of the corium were large and small blood spaces and dilated blood vessels. The blood spaces were lined with endothelium and were filled with normal blood. These spaces were connected with dilated venules in the deeper layers of the corium. There was no evidence of inflammatory reaction, injury of the blood vessels or free hemorrhage.

The elastic tissue was normal in amount and was compressed about the large lacunar blood spaces. There was no evidence of fragmentation or degeneration of the elastic tissue. The clinical and histopathologic diagnosis was angiomas of the scrotum.

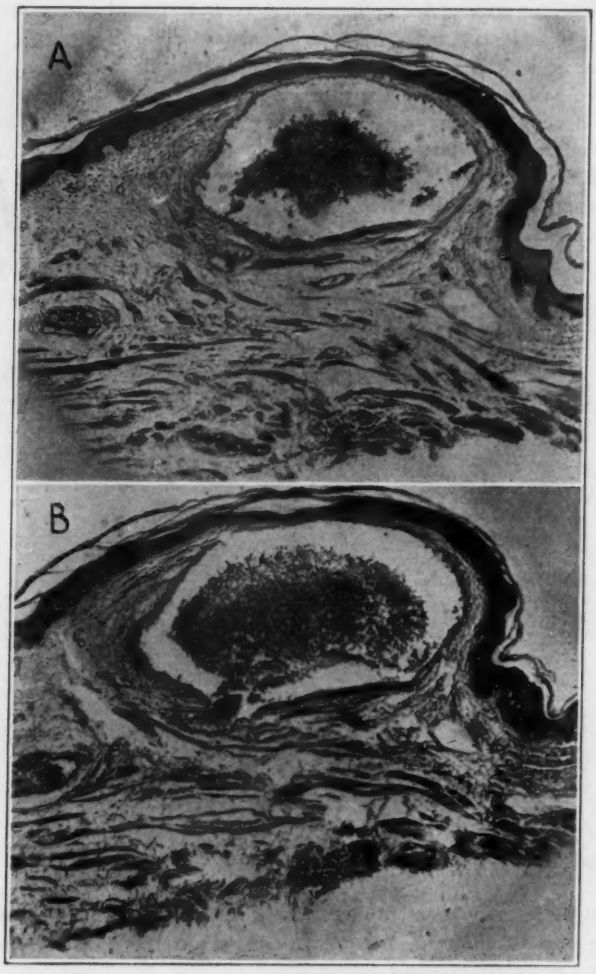

Fig. 3.—*A*, angioma of the scrotum showing a large lacunar blood space in the upper part of the corium lined with endothelium. Intercommunicating blood spaces and vessels are seen in the lower part of the corium. Hematoxylin and eosin stain; low power magnification.

B, angioma of the scrotum showing normal elastic tissue. Weigert's elastic tissue stain; low power magnification.

COMMENT

A compilation of cases of angiomas of the scrotum since Fordyce's first report, in 1896, shows a total of 34 cases reported in medical literature. Twenty of the cases were reported in Europe, Japan and South

America; 14 in the United States. The location of the lesions has been limited to the scrotum except in 3 instances, in which the crural region,[9] the legs [10] and an eyeball [11] were involved. It is of interest to note that leukoderma involving the scrotum and other parts of the body was

Reported Cases of Angiomas of the Scrotum

Case No.	Author and Reference	Year	Age of Patient	Comment
1	Fordyce [1]	1896	60	Vitiligo; double varicocele
2	Buschke: Monatschr. f. Dermat. **35**: 357, 1902	1902	58	Patient suffered from prurigo and erythema multiforme exudativum for 1 year
3	Leredde and Haury [10]	1898	..	Legs also affected
4	Touton: Verhandl. d. deutsch. dermat. Gesellsch. **6**: 375, 1899	1899	..	
5	Toyama: Jap. Ztschr. f. Dermat. u. Urol. **7**: 194, 1907	1907	..	
6	Ito: Jap. Ztschr f. Dermat. u. Urol. **8**: 544, 1908	1908	61	6 cases
7	Sutton [11] (2 cases)	1911	61 64	Varicocele Double varicocele for 20 years; right eyeball involved with angiomas
8	Trowbridge: J. A. M. A. **57**: 1130 (Sept. 30) 1911	1911	61	Dilated venules on scrotum
9	Maki: Jap. Ztschr. f. Dermat. u. Urol. **12**: 8, 1912	1912	..	
10	Isaac: Arch. f. Dermat. u. Syph. **117**: 208, 1913	1913	..	
11	Stümpke [9]	1915	28	Angiomas on crural region and generalized spots
12	Nicolas, Massia and Dupasquier [13]	1921	..	
13	Van Rhee: Arch. Dermat. & Syph. **14**: 497 (Oct.) 1926	1926	36	
14	Stillians: Arch. Dermat. & Syph. **17**: 437 (March) 1928	1928	37	Wile considered the lesions similar to senile angiomas
15	Wollenberg [15]	1930	37	
16	Matras [14]	1930	..	
17	Littman and Levine: Arch. Dermat. & Syph. **23**: 177 (Jan.) 1931	1931	58	
18	Parounagian [8a]	1936	68	
19	Fernandez and Lapalucci: Rev. Asoc. méd. argent. **50**: 214, 1937	1937	..	
20	Dietrich [16]	1938	28	Negro; granuloma inguinale was also present
21	Barker: Arch. Dermat. & Syph. **38**: 455 (Sept.) 1938	1938	43	
22	Wright: Arch. Dermat. & Syph. **40**: 646 (Oct.) 1939	1939	71	
23	Aguilera and Oyamburu [7b]	1940	..	
24	Perpignano [7c]	1940	..	Patient had poliomyelitic paralysis of lower extremities
25	Serra d'Angelo and Castane Decoud [7a]	1942	..	
26	Sweitzer [8b]	1942	49	Bilateral hernioplasty performed 2 years previous to appearance of lesions
27	Corson [9c]	1944	36	

9. Stümpke, G.: Ein Fall von Angiokeratoma corporis diffusum, Arch. f. Dermat. u. Syph. **121**:291, 1915.

10. Leredde and Haury: Angiokeratoma, Ann. de dermat. et syph. **9**:384, 1898.

11. Sutton, R. L.: A Clinical and Histopathologic Study of Angiokeratoma of the Scrotum, J. A. M. A. **57**:189 (July 15) 1911.

present in Fordyce's and the reported case. The presence of leukoderma is probably coincidental but worthy of notice. The ages of the patients reported, when given, ranged from 28 to 71. The majority of the patients were in the fifth, the sixth and the seventh decades of life. One third of the patients were in the third and the fourth decades. The disease is thus primarily found in middle-aged and elderly persons.

In regard to the causation of angiomas of the scrotum, there is often a history of preceding venous obstruction in the form of varicocele, tumor of the epididymis, hernia, hernioplasty or postoperative trauma of the venous system resulting in venous occlusion. A local circulatory weakness is thus induced. Sutton [11] stated the belief that the angiomatous tumors were the result of increases of blood pressure in the superficial venous capillaries—vessels which were insufficiently supported. This investigator also considered a congenital deficiency of the elastic fibers in the integument of the scrotum as cause of scrotal angiomas.

Angiomas of the scrotum can be differentiated without difficulty from angiokeratoma of Mibelli on the basis of clinical, histologic and etiologic factors. Angiokeratoma of Mibelli occurs in childhood and young adult life in the form of telangiectatic and warty lesions on the bony protuberances, such as those of the dorsa of the fingers and the toes and those of the elbows and the knees at points of physiologic trauma. A history of exposure to cold, of frostbite or of pernio usually precedes or accompanies the lesions. The patient often suffers from cold, cyanotic hands and feet. Angiomas of the scrotum, on the other hand, are usually found in middle-aged and elderly persons. There is a history of excessive venous pressure, and the lesions appear telangiectatic or angiomatous with or without hyperkeratosis. The patients do not suffer from pernio, chilblain, or poor circulation.

The histologic picture of angiomas of the scrotum has been reported by Wile and Belote [4] to be almost identical with that of a minute cavernous or senile angioma. The only difference in blood vessel proliferation between the angioma of the scrotum and senile angioma, according to these authors, is that blood spaces within the layers of the epidermis are present in senile angioma. The essential histologic feature in angiomas of the scrotum is the presence of a large number of communicating blood spaces in the subpapillary layer, lined with continuous endothelium and directly connected with underlying dilated venules as in our case. These histologic changes are attributed to increased intravenous pressure, and the hyperkeratotic changes in the epidermis, if present, are explained by Sutton [11] as "nature's attempt to prevent further dilatation and possible rupture of the involved vessels." There are no histologic signs in angiomas of the scrotum suggestive of trauma of blood vessels or of subepithelial or intraepithelial hemorrhage or inflammation as found in angiokeratoma of Mibelli. Hyperplasia of

the epidermis may or may not be present. The elastic tissue in our case, in agreement with the observations in other reported cases, was normal. The histologic picture of angiokeratoma of Mibelli, on the other hand, in distinction from that of angiomas of the scrotum, has been uniformly reported [12] to show signs of injury of the blood vessels with subepithelial and intraepithelial hemorrhage, inflammation, and loss and fragmentation of the elastic tissue. The vascular or lacunar spaces are not lined with endothelium, and the epidermis usually forms part of the wall of the vascular space. Acanthosis and hyperkeratosis are uniformly present in the reported cases. The histologic changes of angiokeratoma of Mibelli are attributed to trauma and injury of the blood vessels, frequently due to pernio or a preceding exposure to cold.

The nomenclature of angiomas of the scrotum has been confused since Fordyce's first description of the disease under the term "angiokeratoma of the scrotum." Because of this name, cases of the disease have not been separated from cases of true angiokeratoma of Mibelli. Other appellations used for this dermatosis have been *angiomes multiples acquis du scrotum (angiokératomes) avec hémorragies* [13] and *angiokeratoma naeviforme scroti.*[14] It is our belief that the definite and distinctive clinical, histologic and etiologic factors present in this dermatosis warrant that dermatologists follow the suggestion of Wile and Belote, that in order to avoid confusion with angiokeratoma of Mibelli the nomenclature of the disease be restricted to a true descriptive term such as "angiomas of the scrotum." Several investigators have made statements, in the discussion of cases of angiomas of the scrotum presented before dermatologic societies, that support this change in nomenclature. Wile, in the discussion of Wollenberg's case,[15] stated that the disease is in no way related to true angiokeratoma, which is a disease of the extremities and produces hemorrhagic lesions, whereas the scrotal lesions are merely vascular structures analogous to senile angiomas. Wise, in the discussion of Dietrich's case,[16] stated that there is nothing fundamentally different in the pathologic pictures of angiomas of the scrotum and angiokeratoma of the scrotum. He said that both are just angiomas and that acanthosis and hyperkeratosis when present over the summits of the lesions are secondary. Ormsby, in the discussion

12. Way, S. C.: Histopathology of Angiokeratoma, Arch. Dermat. & Syph. **22**:301 (Aug.) 1930. Mibelli.[2] Wile and Belote.[4] Traub and Tolmach.[5]

13. Nicolas, J.; Massia, G., and Dupasquier: Sur un cas d' angiomes multiples acquis du scrotum (angiokératomes) avec hemorragies, Ann. de dermat. et syph. **2**:481, 1921.

14. Matras, A.: Angiokeratoma naeviforme scroti, Zentralbl. f. Haut- u. Geschlechtskr. **35**:345, 1930.

15. Wollenberg, R.: Dermographism, Pityriasis Rosea and Punctate Angiomas of the Scrotum, Arch. Dermat. & Syph. **21**: 131 (Jan.) 1930.

16. Dietrich, C.: Angiokeratoma, Arch. Dermat. & Syph. **38**:157 (July) 1938.

of Sweitzer's case,[8b] stated that angiomas of the scrotum are not true angiokeratoma of Mibelli but simple telangiectatic or angiomatous lesions with or without hyperkeratosis. Weidman, in the discussion of Wright's case,[17] stated the belief that the lesions on the scrotum were angiomas with secondary hyperkeratosis.

The observation that hyperkeratosis is at times associated with angiomas of the scrotum has led to much of the confusion that exists in the nomenclature of this disease. Weidman [8c] has expressed the belief that wherever blood collects there is a tendency for hyperplasia of the epidermis to occur above the accumulation. Many so-called angiokeratomatous lesions of the scrotum have thus been diagnosed on a histologic basis because some hyperkeratosis was evident microscopically which was not sufficient to be evident clinically.

Angiomas occurred on the tongue in association with the scrotal angiomas in our patient. This is the first reported instance of their association. So-called angiokeratoma of the tongue has been reported by Michelson [18] and Richter.[19] The factor of increased venous pressure can also account for angiomas occurring in the tongue.

SUMMARY

A plea is made for the continued use of a true descriptive term such as "angiomas of the scrotum" as first suggested by Hudelo, Wile and Belote to describe the disease sometimes called angiokeratoma, Fordyce, to differentiate it from angiokeratoma of Mibelli.

The reported case is the first in which angiomas of the tongue were associated with those of the scrotum and the second in which angiomas of the scrotum were associated with leukoderma involving the scrotum.

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17. Wright, C. S., and Friedman, R.: Angiokeratoma of Scrotum (Fordyce Type), Arch. Dermat. & Syph. **40**:646 (Oct.) 1939.

18. Michelson, H.: Angiokeratoma of the Tongue, Arch. Dermat. & Syph. **13**:578 (April) 1926.

19. Richter, W.: Ueber ein Angiokeratoma der Zunge, Dermat. Wchnschr. **80**:574, 1925.

"FIXED" ERUPTION OF THE MUCOUS MEMBRANE AND THE SKIN CAUSED BY SULFADIAZINE

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MANY eruptions of different types have been described following the oral and topical administration of the sulfonamide compounds. Probably in no sphere of life has there been so much sulfonamide therapy as in the army. The number of cutaneous reactions probably has been slightly lower than that seen in civilian life because the age group is one in which the subject does not pay too much attention to a dermatologic condition which does not incapacitate him. Too, I believe that many cases of sulfonamide reactions are incorrectly diagnosed in the busy rush of a "sick call."

The commonest reactions to sulfadiazine are macular eruptions, febrile reactions and conjunctivitis. "Fixed drug" eruptions are rare following administration of sulfadiazine.[1] In the literature so far, few cases of involvement of the mucous membrane following administration of sulfonamide drugs have been reported.[2]

The following 3 cases are reported because of the existence of both these phenomena, i. e., fixed eruptions of the mucous membrane and the skin following sulfadiazine therapy.

REPORT OF CASES

CASE 1.—A white soldier entered this hospital in Italy Jan. 29, 1945, for dark field examination for a penile "sore." Examination revealed a bullous lesion about the size of a dime on the dorsum of the penile shaft posterior to the coronal sulcus. He also complained of a soreness in his mouth, and denuded inflamed areas were noted on the buccal membranes, mostly on the upper lip. A history was elicited that three days previously he had been given sulfadiazine for gonorrhea—a total of 7.5 Gm. On further questioning he revealed that he had had gonorrhea in June 1944. At that time sulfadiazine was taken, and he was kept in the hospital because, as he was told, he had a Vincent's infection. Both the penis and the mouth were involved, but, of course, the patient could not state whether the lesions were in exactly the same locations as the present ones. Under treatment with saline mouth washes and sodium bicarbonate soaks all the lesions healed by Feb. 11, 1945. Sulfadiazine, 2 Gm., was then administered. Two hours after the first dose the patient complained of itching of the penis and swelling of the upper lip. With no further administration of the drug, the same

1. Freeman, H. E.: Fixed Eruption from Sulfadiazine or Sulfamerazine, Arch. Dermat. & Syph. **50**:45 (July) 1944.

2. Schnee, I. M.: Membranous Inflammation of Oropharynx, Nose and Conjunctiva Due to Sulfathiazole Administration, Brit. M. J. **1**:506 (April 24) 1945.

eruption on both penis and mucous membranes occurred. The patient was warned about taking sulfonamide drugs in the future. Patch tests with sulfadiazine powder gave negative results. Laboratory data were essentially normal.

CASE 2.—An American soldier of Japanese descent, aged 24, entered the hospital on March 28, 1945, complaining of severe pain of the tongue and the roof of the mouth. Examination revealed numerous reddened denuded, almost ulcerative lesions on the dorsum of the tongue. The buccal membranes corresponding to the bite of the teeth were also involved, although not nearly so severely as those of the roof of the mouth. Further examination revealed no cutaneous lesions. Examination for Vincent's spirochetes proved negative. The next morning the patient noted a tense purplish itchy lesion on the left side of the head of the penis. By that night a blister had formed. The appearance was that of a fixed eruption, and questioning revealed that he had taken 4 Gm. of sulfadiazine in doses of 2 Gm. on March 24 for a sore throat, while on a troop ship coming from Marseilles to Leghorn, Italy. The pain in his mouth was first noted March 25. No further sulfadiazine was taken. The lesions healed fully in six days after treatment with saline mouth washes and wet saline dressings to the penis. The patient was then given 2 Gm. of sulfadiazine. He complained of stinging and itching in the mouth within the hour. Next morning the lesions reappeared in the mouth, showing the same formation as those originally seen. The lesion appeared on the penis, but this time it did not form a vesicle. Instead a somewhat indurated tense lesion appeared in exactly the same location as the one seen originally. Discontinuance of the drug led to prompt healing of all the lesions. Patch tests with sulfadiazine powder gave negative results.

CASE 3.—An American soldier aged 22 was admitted to the hospital on June 8, 1945, complaining of "blisters" on the roof of the mouth and on the penis. While he was being questioned, he himself gave me the diagnosis by stating that he was sure that they were caused by sulfadiazine. He was given 4 Gm. of sulfadiazine on June 6 for chronic gonorrhea, with the resultant dermatitis the next day. He further stated that his first lesion appeared four months before on the penis when he was given sulfadiazine for a sore throat. At this time only the penis was involved. Two months before he received 6 Gm. of sulfadiazine with the same result as that seen on admission to the hospital—i. e., three inflamed vesicles on the roof of the mouth and one on the dorsum of the glans penis. Under bland treatment the lesions healed in a few days, the penile one sooner than the ones in the mouth. On June 16 he was given 1 Gm. of sulfadiazine at 9 a. m. One hour later he stated that his mouth felt sore and his penis itchy. There was no abnormality to be seen in the mouth, but the head of the penis was erythematous. Another gram of sulfadiazine was given at 11 a. m., and by 2 p. m. a vesicle was beginning to form on the glans. The hard palate was somewhat turgid, and no further medication was given for fear of a serious accident. Three days later all signs and symptoms had cleared. Patch tests with sulfadiazine powder gave entirely negative results.

COMMENT

These three cases are examples not only of cutaneous reactions to sulfonamide compounds, which are commonly seen, but also involvement of the mucous membrane, a phenomenon rarely noted. Their occurrence as "fixed" eruptions, both of the skin and of the mucous membrane, makes them all the more noteworthy.

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CIRCUMSCRIBED NEURODERMATITIS (LICHEN CHRONICUS SIMPLEX)

Its Treatment by Injections of Alcohol

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FROM a perusal of the literature, the management of circumscribed neurodermatitis (lichen chronicus simplex) would appear to be a fairly simple procedure. In our experience the accepted therapy, consisting of topical applications, roentgen irradiation, sedation and attention to the patient's general and mental status, produces satisfactory results in a certain number of cases, but there are frequent failures and recurrences. This report is concerned with the consideration of another therapeutic approach.

We have investigated the therapeutic injection of alcohol in the treatment of localized neurodermatitis and other related cutaneous diseases in which a dry lichenified plaque is the prominent feature. It is our impression that a plaque of neurodermatitis arises in tissue of poor resistance or of poor functional reaction. It usually occurs in areas subject to frequent trauma, the most classical example being the nape of the neck, especially in women. On careful inquiry, these areas are found to be subjected to frequent trauma, such as contact, pressure and friction from hairpins in the coiffure, the friction from knotted or coiled strands of hair, the continuous pressure from or the rubbing of a scarf, a coat collar or a necklace and the friction from tightly fitting undergarments, coat sleeves, garters, trousers, shoes or socks.

We have frequently been able to procure a history of preceding itching in a specific localized area in a person who may be subject to a poorly balanced psychic or psychoneurotic status. If the primary itching, without previous eruption, persists sufficiently long or occurs frequently, it evokes a reaction of traumatism from rubbing and scratching. Following this, there is gradual evolution of the classic plaque of neurodermatitis, which varies in size and location according to the many possible factors suggested. This operative procedure is an attempt to break the continuity of clinical events and thus to counteract the tissue reaction to pruritus.

In general the plaque is dry, as Brocq insisted, in contrast to the slight evidence of moisture in atopic eczema and in chronic crusted, scaly and lichenified eczema. In other words, circumscribed neurodermatitis

is usually dry, and the diffuse lichenified areas of the other type just mentioned may be crusted, fissured or at times weeping. All types are considered related, yet etiologically different. This relationship may be based arbitrarily on a factor of neurosis, common to all, and associated with an increasing degree of allergy.

Injections of alcohol have not been successful in every instance, but because the customary means, such as roentgen rays and ointments, may fail it was suggested to us by Stone's [1] original procedure that injections of alcohol may be of value in selected cases. Although the "block" injection of alcohol to obtain anesthesia may be practicable, we have had no experience with that technic and the dangers inherent in the method may be too great to justify using it for a relatively benign cutaneous disease. Stone [2] in 1926 stated, "There are no serious complications or disadvantages to fear. Sloughing may be reduced to a negligible degree. There is no objection to repeating the injections as often as may be necessary."

TECHNIC

The technic as outlined and practiced by Stone [1] was customarily followed. In the treatment of large patches, more than 5 cm. in diameter, the injections should be made with the patient under the influence of a general anesthetic, or a preliminary dose of morphine sulfate may be administered. The affected area is divided into square centimeters. With a tuberculin syringe, between 0.1 and 0.2 cc. (average, 0.12 cc.) of 95 per cent alcohol is injected into each square centimeter. One should be mindful of the possibility of sloughing of tissue in cases in which the quantity of alcohol is too large or is injected too superficially. A fine needle, 25 to 27 gage, about 2 cm. long, is introduced vertically to about 1 cm. below the surface, so that the point is just below the dermis. While the alcohol is being injected, the one who makes the injection elevates each small area slightly by lifting or pulling the point of the needle upward, thus creating a pocket which holds the alcohol in the subcutaneous tissue. The entire area is then painted with an antiseptic, and hot compresses may be applied for about ten minutes, followed by application of a bland ointment.

Early in the series some of the patients were given a preoperative local anesthetic, but this diluted the injected alcohol too much.

In those cases in which a general anesthetic is not used, there may be a variable evanescent amount of pain, expressed as stinging or burning.

The patient usually leaves the operating table in comparative comfort; the itching soon ceases and may be replaced by a feeling of numbness. The area of injection gradually subsides in thickness and becomes quite normal in appearance in one or two weeks.

Forty-five patients were treated. Through a questionnaire, we found that 66 per cent of the patients were cured; 18 per cent had

1. Stone, H. B.: A Treatment for Pruritus Ani, Bull. Johns Hopkins Hosp. **27**:242, 1916.

2. Stone, H. B.: Pruritus Ani: Treatment by Alcohol Injections, Surg., Gynec. & Obst. **42**:565 (April) 1926.

partial cure (with recurrence), and 16 per cent reported failures. If patients are selected and treated with proper technic, approximately 75 per cent can be cured.

ABSTRACT OF CASES SELECTED FROM A TOTAL OF FORTY-FIVE CASES

CASE 1.—Mrs. F. G. R., aged 28, was first seen on Jan. 21, 1939, complaining of an eruption of ten years' duration, on the upper right eyelid, and a constantly pruritic dermatitis of a similar type of lesion of three years' duration on the left posterior cervical region. An examination disclosed an area of neurodermatitis on the eyelid and a well defined plaque, 7 by 9 cm., on the neck. The treatment consisted of topical applications and of roentgen rays. The eruption on the eyelid disappeared, and that on the neck improved but remained active. On Feb. 7, 1942, the active area, 12 by 3 cm., on the neck was treated with injections of alcohol after a preoperative oral dose of morphine sulfate. The operation was repeated on February 21. On February 28 the treated area was erythematous and non-infiltrated. In response to an inquiry in 1944 the patient wrote, "These treatments had a powerful psychological effect on me. . . . They were mighty unpleasant but I do not scratch any more."

CASE 2.—Mrs. J. S. C., aged 50, had a typical patch of neurodermatitis of one year's duration on the left side of the back of the neck near the hair-skin border, measuring about 3 cm. in diameter. She also presented a number of sebaceous cysts of the scalp. Her hair was held in a knot below the occiput by means of hairpins. On June 17, 1942, without preoperative sedation, alcohol was injected into the affected area. She did not complain of any pain. On June 23 the area felt "dead," and there was no itching. The area of injection was slightly lichenified and edematous. Inquiry one year later disclosed that the patient had remained well.

CASE 3.—Mrs. H. P., aged 35, was examined on July 10, 1943, at which time she presented a lesion of ten years' duration on the back of the neck and of three years' duration on the inner surface of the right thigh. The affected area on the neck extended onto the scalp and measured 6 by 8 cm., and that on the thigh was approximately 5 by 9 cm. On July 21 she was given morphine sulfate by mouth, and she was also given this drug hypodermically during the operation because she was nervous and complained of pain. Into the patch on the thigh 6 cc. of alcohol was injected. Three days later the area was slightly puffy but felt comfortable. On August 5 the patient stated that there was slight numbness in the treated area and "a tremendous improvement beyond expectations" but that she was conscious of mild itching. On September 15 she wrote that the area on her neck did not bother her at all. On June 1, 1944 she reported that the eruptions had disappeared everywhere except on the scalp, where the injections had not been given.

CASE 4.—Miss T. R., aged 21, was seen on April 30, 1935. An examination revealed well defined patches of very pruritic neurodermatitis of four years' duration on each side of the neck and on the left thigh. The plaques were lichenified and infiltrated, with moderate crusting and scaling. Five roentgen ray treatments gave incomplete relief. On October 24 an area on the neck was anesthetized with nupercaine hydrochloride and injections of alcohol were given. There was a slight postoperative stinging sensation. On October 29 the area was numb, and on Feb. 13, 1936 the area was slightly infiltrated but nonpruritic. Another area on the side of the neck was treated on April 27. The patient was clinically

well on May 7. She had been very nervous while she had the disease. The lesions cleared temporarily; some plaques remained completely healed for three to five years, but others recurred.

CASE 5.—Miss T. D., aged 40, was seen in October 1942, complaining of a dermatitis of one year's duration on the anterior surfaces of the legs. The eruption consisted of well defined lichenoid, pruritic plaques, about 5 to 10 cm. in diameter, covered with a moderately adherent scale. For six months the patient received local therapy and the sites of eruption were irradiated with 60 or 70 roentgens weekly. The results were fairly satisfactory, but in June 1943 she returned with a recrudescence of the neurodermatitis. For the next three months, at biweekly intervals 4 to 8 sq. cm. of the involved area of each leg received injections of 95 per cent alcohol. The patient did not complain of pain; there were no complications, and the immediate response was excellent. In April 1945 she returned with a slight recurrence on the right leg.

CASE 6.—A white woman aged 35 was seen in the dispensary, complaining of a pruritic eruption in the right popliteal space of two years' duration. It was a lichenified plaque about 4 by 8 cm. in size. There was some evidence of moisture as portrayed by slight crusting. Injections were given six times in March 1944 and twice in October 1944, according to the technic outlined. The response was objectively fair, and the eruption improved but did not disappear. There was some increase of the infiltration in consequence of the cellular reaction to the alcohol. The final results were poor; nevertheless, the patient returned in March 1945, requesting injections into the area to allay the itching. This patient had disseminated neurodermatitis with crusting. (We consider the presence of moisture a contraindication to injections of alcohol.)

In 1936 one of us (F. A. E.[3]) made a preliminary report on injections of alcohol as used in the treatment of chronic localized lichenoid eruptions. The patient whose eruption was described in the original report has not had any recurrence. In 1938 Wilson[4] summarized the literature on the treatment of pruritus vulvae with injections of alcohol and described his results in 49 patients. He discussed the histologic changes occurring in the tissues after the injections. He expressed the belief that the alcohol caused degeneration of the subcutaneous nerve fibers, producing cutaneous anesthesia, but that the more important changes occurred in the vascular and in the reticuloendothelial system, resulting in rapid mobilization of polymorphonuclear leukocytes and histiocytes. This repaired the inflammatory processes and thus disposed of the factors principally responsible for the pruritus as well as the cutaneous lesions usually present.

Hertzler,[5] Jacoby,[6] Danis,[7] Swinton,[8] Reich, Button and Nechtow,[9] Pontoppidan,[10] König[11] and Buie[12] recommended injections of alcohol

3. Ellis, F. A.: The Treatment of Localized Chronic Lichenoid Dermatitis, Bull. School Med., Univ. Maryland **21**:55 (Oct.) 1936.

4. Wilson, W. M.: Treatment of Pruritus Vulvae by Alcohol Injections, J. A. M. A. **110**:493 (Feb. 12) 1938.

for the treatment of pruritus ani and pruritus vulvae. The Suttons suggested that injections of alcohol may be of value in the treatment of Fox-Fordyce [13] disease (lichenoid eruptions of the axilla) and of kraurosis vulvae.[14]

COMMENT

Several aspects of this method of treatment require discussion, for it must be stressed that the procedure should be used in selected cases. First: Although injections may be used for small single areas with or without other forms of therapy, this procedure is most valuable when roentgen rays have been tried with poor results or with subsequent recurrence or when roentgen rays are contraindicated on account of possible epilation or other sequelae. Second: The areas treated should not be located over bony structures, such as those of the ankle, the wrist, the knee and the mastoid region where there is a minimum amount of subcutaneous fat, because allowance must be made for the reaction to the presence of alcohol, which may dehydrate or otherwise injure the tissue. Third: Extensive areas should be treated in separate stages, time being allowed for the restitution of tissue injured by the alcohol. This should lessen the chance of a slough resulting from faulty technic or of a possible general toxic reaction. Fourth: Our experience is that the use of a drug producing general anesthesia is desirable and at times mandatory. A locally injected anesthetic is not satisfactory because it dilutes the alcohol. Small patches, not over 5 cm. in diameter, may be treated without anesthesia or with the administration of a preliminary dose of morphine sulfate if the operation can be carried out within a few minutes. Fifth: This treatment should not be attempted without some preliminary practice.

5. Hertzler, A. E.: The Technic of Local Anesthesia, ed. 5, St. Louis, C. V. Mosby Company, 1933, p. 26.

6. Jacoby, A.: The Treatment of Pruritus Vulvae with Subcutaneous Alcohol Injections, Am. J. Obst. & Gynec. **29**:604 (April) 1935.

7. Danis, J. T.: Pruritus Ani, Canad. M. A. J. **38**:265 (March) 1938.

8. Swinton, N. W.: The Injection of Alcohol in the Treatment of Pruritus Ani, S. Clin. North America **19**:689 (June) 1939.

9. Reich, W. J.; Button, H., and Nechtow, M. J.: A New Treatment for Intractable Pruritus Vulvae, Am. J. Obst. & Gynec. **45**:1036 (June) 1943.

10. Pontoppidan, B.: Treatment of Neurodermatitis, Particularly Pruritus Ani with Subcutaneous-Submucous Injection of Alcohol, Ugesk. f. læger **102**: 505 (May 16) 1940.

11. König, W.: Die Behandlung des Pruritus ani mit Alcoholinjectionen, München. med. Wchnschr. **90**:16 (Jan. 1) 1943.

12. Buie, L. A.: Practical Proctology, Philadelphia, W. B. Saunders Company, 1937, p. 249.

13. Sutton, R. L., and Sutton, R. L., Jr.: Diseases of the Skin, ed. 10, St. Louis, C. V. Mosby Company, 1939, p. 1444.

14. Sutton and Sutton,[13] p. 512.

Other forms of therapy, such as roentgen irradiation, topical applications and proper sedation, together with the removal of probable irritants and readjustments of the patient's neuropsychic situation, should be given adequate attention and trial. Finally, it should be explained to the patient that this procedure does not guarantee a cure but that repetition of injections of alcohol does not involve serious danger or damage to tissues and that (Stone [2]) the course of treatment can be repeated as conditions may demand. It gives almost immediate relief to the intractable pruritus. It has the advantage of satisfying the patient that something radical is being done and that relief may be permanent.

SUMMARY AND CONCLUSIONS

The method of treating lichen chronicus simplex (neurodermatitis circumscripta) and allied diseases associated with lichenification and pruritus reported here is not new, but its application to dermatologic diseases other than in the field of surgery (pruritus vulvae and pruritus ani) to our knowledge has not been utilized previously except as suggested by Sutton and Sutton and by Pontoppidan.[10]

Until other methods revealing an acceptable rationale are suggested, it would appear that a course of injections of alcohol is a forward step in the management of localized neurodermatitis, a not serious but usually refractory, recurrent and annoying cutaneous disorder.

From an analysis of the results of the treatment of 45 patients we conclude that: If the patients are properly selected and the proper technic is used in the injection of alcohol, cures can be obtained in 75 per cent of the patients with one course of injections. This percentage can be increased by repeated courses of injections of alcohol.

ATOPIC DERMATITIS OF THE HANDS DUE TO FOOD ALLERGY

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"ECZEMATOID" dermatitis of the hands may be due to atopic allergy to food more frequently than has been realized. This opinion is based on the control and reproduction of dermatitis of the hands by the elimination and later by the reintroduction of allergenic foods into the diet of 80 patients in a series of 182 patients with dermatitis of the hands seen in the private practice of allergy. Atopic dermatitis of the hands due to allergy to inhaled pollen as a major or secondary cause also occurred in 22 of these patients.[1]

In the literature on atopic dermatitis due to food allergy there is little previous reference to the major or sole involvement of the hands.

TABLE 1.—*Incidence of Dermatis According to Sex*

Sex	Number of Patients
Males	15
Females	65
Total cases	80

Wise, in 1930 and again in 1936,[2] reported 2 cases of dermatitis of the palms and fingers with vesicular, sago grain lesions caused by allergy to ingested orange juice. J. Avit-Scott[3] in 1934 reported a case of vesicular oozing eruption on the sides of and between the fingers developing several hours after the patient had peeled oranges, indicating contact allergy. Possible mild atopic allergy was also present. White[4] in 1935 reported a case of eczema on one hand after the eating of chocolate and a case of recurrent dermatitis in the palms after the patient had eaten peas, beans and peaches.

1. Rowe, A. H.: Dermatitis of the Hands Due to Atopic Allergy to Pollen, Arch. Dermat. & Syph. **53**:437 (May) 1946.

2. Wise, F., and Wolf, J.: Dermatophytosis and Dermatophytids, Arch. Dermat. & Syph. **34**:1 (July) 1936.

3. Avit-Scott, J.: A Case of Orange Dermatitis, Brit. J. Dermat. **46**:378, 1934.

4. White, C. J.: Allergy in Diseases of the Skin, M. Clin. North America **18**:1253, 1935.

The failure to recognize food allergy in the causation of "eczematoid" dermatitis of the hands is due, in my opinion, to the failure to realize the fallibility of the cutaneous tests [5] and to the infrequent use of accurate trial dieting for the study of food allergy.

I agree with Lane, Rockwood, Sawyer and Blank [6] that "dermatomycosis, dermatophytid, contact dermatitis or soap dermatitis" is responsible in only a few of the cases of "eczematoid" dermatitis of the hands, and I am of the opinion that atopic allergy to food and, much less often, to pollen and probably other types of inhalant allergy is responsible for many of the large number of eruptions for which Lane and his associates concluded "the cause of which was not known."

STATISTICAL ANALYSIS OF 80 CASES

The hands were the major or the sole areas of involved skin in all patients in this series. Many other infants, children and adults afflicted with such dermatitis on other areas of the skin, with or without involvement of the hands, have been relieved by the elimination of allergenic foods and the control of existent inhalant allergies. The infrequency of eczema on the hands in infantile eczema, so frequently due to food allergy, explains the presence of only 1 infant in this series.

TABLE 2.—*Number of Patients in Age Groups*

Women		Men	
Age Groups, Yr.	Number of Patients	Age Groups, Yr.	Number of Patients
0 - 1	1	0 - 1	1
1 - 5	2	2 - 5	1
5 - 15	4	5 - 15	2
15 - 20	13	15 - 20	0
20 - 30	22	20 - 30	6
30 - 40	14	30 - 40	4
40 - 50	7	40 - 50	1
50 - 60	1	50 - 60	
60 and up	1	60 and up	
Average age: 26.3 yr.		Average age: 22.2 yr.	

The preponderance of females over males is striking. As shown in table 2, the average age is in the twenties in both men and women. The dermatitis, however, may be present at any age.

The involved areas vary in different patients (table 3). The dorsum of the hand is affected over twice as often as is the palm. In some of the cases of dermatitis of the palm, the small or moderate-sized sago grain lesions characteristic of pompholyx or dyshidrosis were present,

5. Rowe, A. H.: The Evaluation of Skin Reactions in Food Sensitive Patients, J. Allergy **5**:135, 1934.

6. Lane, C. G.; Rockwood, E. M.; Sawyer, C. S., and Blank, L. H.: Dermatoses of the Hands, J. A. M. A. **128**:987 (Aug. 4) 1945.

supporting the opinion of Wise and Wolf [2] that the eruptions in many such cases are due to atopic allergy. The dorsum alone was involved in 10 per cent. Both the dorsum and the palm were involved in

TABLE 3.—*Involved Areas of Hands and Fingers in 80 Patients*

Area	Number of Patients
Hands, dorsum	57
Hands, dorsum (only)	8
Hands, palms	24
Hands, palms (only)	0
Hands, palms with dorsums	15
Hands, palms with fingers	13
Fingers, dorsum and sides of	
1 or 2 fingers	27
1 or 2 fingers (only)	5
1 or 2 fingers and palms	3
1 or 2 fingers and dorsum	7
3 to 5 fingers	32
3 to 5 fingers (only)	2
3 to 5 fingers and palms	9
3 to 5 fingers and dorsum (hands)	28
Fingers, ventral surfaces and sides of	
1 or 2 fingers	3
1 or 2 fingers (only)	0
1 or 2 fingers and palms	1
1 or 2 fingers and dorsum of fingers	2
3 to 5 fingers	6
3 to 5 fingers (only)	0
3 to 5 fingers and palms	4
3 to 5 fingers and dorsum of hands	3

TABLE 4.—*Frequency of Other Areas of Dermatitis in 80 Patients*

Areas	Number of Patients
Wrists	16
Forearms	17
Cubital areas	4
Arms	3
Scalp	3
Face	17
Ears	5
Neck	19
Anterior part of chest	4
Abdomen	1
Upper part of back	2
Lower part of back	1
Buttocks	1
Genitals	1
Groins	1
Thighs	4
Popliteal areas	2
Legs	5
Ankles	4
Feet	
Dorsum	4
Soles	3
Toes	3
Dermatitis of hands only	20
Dermatitis of hands, with one or two other areas of dermatitis	20
Dermatitis of hands, with more than two other areas	40

22 per cent. The ventral surfaces of the fingers were affected in 11 per cent, whereas the dorsum and sides of the fingers were involved in 75 per cent. In 11.5 per cent the dorsum and sides of the fingers were the only involved areas of the hands and fingers.

The major involvement of the hands in this series is shown in table 4. The hands and fingers were the only cutaneous areas involved in 25 per cent, and they were associated with one or two areas of secondary importance in another 25 per cent.

The chronicity of the cases is shown in table 5, the average duration of the dermatitis being seven years, the eruption in 27 per cent of the cases continuing for ten or more years and in 50 per cent for five or more years. In all cases the eruption had been present longer than six months.

TABLE 5.—*Duration of Dermatitis of Hands in 80 Patients*

Duration, Yr.	Number of Patients
More than 20	7
10 - 20	16
5 - 10	17
1 - 5	35
½ - 1	5
Average duration	7 yr.
Men	9.9 yr.
Women	6.4 yr.

Perennial dermatitis of the hands (table 6) in varying degrees was present in 96 per cent. Its absence or decrease in 4 per cent in the summers and its exaggeration in the winters in 26 per cent may have been due to the exaggeration of food allergy during the fall to spring months.[7] The exaggeration during the spring, summer and fall months may be explained by atopic allergy to pollen, the treatment of which

TABLE 6.—*Occurrence of Dermatitis in 80 Patients*

Time of Occurrence	Number of Patients
Perennial	80
Exaggeration in summer	6
Exaggeration in fall	3
Exaggeration in winter	21
Exaggeration in spring	8
Exaggeration with periods	5
Exaggeration with pregnancy	1
Freedom in pregnancy	1

is discussed later, or by ingestion of or contact of the hands with seasonal foods. The exaggeration of the dermatitis during menstrual periods is comparable to the exaggeration of other manifestations of atopic allergy during menstruation.

This atopic dermatitis was the only manifestation of food allergy in 38 per cent. Other manifestations were infrequent (table 7). A family history of possible allergy was negative in 35 per cent.

7. Rowe, A. H.: Seasonal and Geographic Influences on Food Allergy, J. Allergy **13**:55, 1941.

The eczema of the hands occurred in the family histories of 4 patients. In 22 per cent the personal and family histories were negative for allergy except for the existent dermatitis of the hands.

A dietary history (table 9) suggestive of food allergy, especially to milk and less often to egg, fruit and, at times, other foods, was obtained in only 40 per cent. A history of the onset or exaggeration of the dermatitis from contact with foods, especially with certain fruits

TABLE 7.—*Personal Allergic History in 80 Patients*

History	Number of Patients
Nasal allergy	
Perennial	14
Pollen	5
Bronchial asthma	10
Previous eczema	
Infantile	8
Adult	5
Urticaria	1
Epilepsy	1
Sick headaches	14
Gastrointestinal allergy	13
Allergic fever	2

TABLE 8.—*Family History of Allergy in 80 Patients*

Family History	Number of Patients
Nasal allergy	14
Bronchial allergy	15
Eczema	21 (3 of hands)
Urticaria	3
Sick headaches	12
Gastrointestinal allergy	3

TABLE 9.—*Dietary, Drug and Environmental Histories Suggestive of Allergy in 80 Patients*

History	Number of Patients
Dietary history (suggestive of possible food allergy)	30
History of contact allergy to foods	7
History of drug allergy	5

or vegetables, was obtained in 13 per cent. In these cases, however, atopic allergy to food from blood-borne food allergens was the major cause.[8] Moreover, transepidermal penetration of food allergens may have exaggerated the major atopic type of reaction, and contact epidermal allergy to such foods may have been absent.

A small number of patients gave reactions to food and inhalant allergens by the scratch test (table 10). I have long stressed the

8. Templeton, H. J.: Epidermal and Dermal Sensitization Co-Existing in the Same Individual J. A. M. A. **127**:908 (April 7) 1945.

fallibility of the cutaneous test in chronic food allergy and, to a lesser degree, in inhalant allergy.[9] Because of the many reactions, nonspecific in nature or due to potential or past allergy, obtained by the intradermal test with food allergens, only the scratch method was utilized in this study.

TABLE 10.—*Cutaneous Reactions by the Scratch Test in 80 Patients*

Material Causing Reaction	Number of Patients
Foods	7
Animal emanations	7
Miscellaneous inhalants	6
Pollens	
Spring	10
Fall	7
Tree	2
Cultivated flower	3
No reactions *	45

* Ten patients reacted to more than one type of allergen.

TABLE 11.—*Types of Allergy Responsible in 80 Patients*

	Number of Patients
Food allery	80
Pollen allergy	22
Dust allergy	1

The diagnosis of food allergy as the cause of the atopic dermatitis was made with my standardized elimination diets.[9a] With the proper diet, relief became evident in from one to six weeks but rarely in two to three days (table 12). The average period of supervision during

TABLE 12.—*Time Required to Obtain Evidence of Benefit with Elimination Diet in 80 Patients*

Period	Number of Patients
1 week	5
2 weeks	31
2 to 4 weeks	38
4 to 9 weeks	6

TABLE 13.—*Duration of Relief from the Elimination Diets*

Duration	Number of Patients
½ to 1 year	14
1 to 3 years	32
3 to 5 years	21
5 to 9 years	13

which good control of the dermatitis continued was 3.2 years, the shortest time being six months and the longest being nine years (table 13).

9. Rowe, A. H.: (*a*) Elimination Diets and the Patient's Allergies, ed. 2, Philadelphia, Lea & Febiger, 1944; (*a*) footnote. 5.

Pollen allergy was a cause, secondary in importance to food allergy, in 24 per cent.[1] House dust allergy was a factor in 1 case. Other types of inhalant allergy in association with food allergy were not present.

Excellent results (table 14) occurred in 57.5 per cent and good or satisfactory results in 42.5 per cent. Since the diagnosis of food as the major cause of this dermatitis of the hands is possible only when good results occur from the elimination of allergenic foods, no failures are found in the series.

TABLE 14.—*Results of Treatment in 80 Patients*

	Number of Patients
Results	
Excellent	46
Good	34
Cooperation	
Excellent	48
Good	32
Previous treatment	
Roentgen rays	32
Local	71

Local therapy consisting of ointments, compresses or light treatments had been prescribed for palliative relief by other physicians in 86 per cent. Roentgen ray treatments had been given in 40 per cent, with little or no lasting benefit.

OTHER CAUSES OF DERMATITIS OF THE HANDS

In the last ten years I have studied 182 cases of dermatitis of the hands. In the 80 cases analyzed in this paper, atopic food allergy was the major cause. In another 28 cases, food allergy was the probable major cause, though this could not be proved, because of poor cooperation. Atopic allergy to pollen, complicated in a few instances by food allergy, was the major cause in 22 cases. In 3 cases desensitization with oidiomycin-trichophytin antigen controlled the eruption, indicating the relative infrequency of infection or allergy to fungi in my patients. It also was administered in several other cases, being discontinued when relief occurred with the control of atopic allergy to food.

Contact allergy was recognized in 15 cases, in only 1 of which atopic dermatitis of the hands due to food allergy also was present. Allergy to rubber in gloves caused eczema in 3 physicians. Cutaneous allergy to procaine hydrochloride and other local anesthetics was present in 2 dentists. Butesin picrate produced an exfoliative dermatitis on the hands after its application in an ointment to a burn. Another patient had an eczema of the palms from allergy to an ingredient in tooth powder held in her hand. The handling of spices resulted in dermatitis of the hands in a woman. Another patient had dermatitis of the hands

from allergy to the ink on labels. An ingredient in hand cream caused dermatitis in 1 case. A man suffered with a bullous type of dermatitis due to photographic developer. Several women were relieved of dermatitis of the hands when they ceased handling fruits and vegetables.

In the rest of the 184 cases the atopic, contactant or infectant causes were not ascertained, largely because of poor cooperation. It is to be noted that few industrial workers were encountered in my practice of allergy. The probability that some dermatitis of the hands attributed to industrial causes is due to atopic allergy activated by the irritations of occupations is discussed later.

CHARACTER AND COURSE OF ERUPTION

Atopic dermatitis of the hands and other areas due to food allergy produces minute and at times pinpoint, vesiculopapular and at times vesiculopustular lesions, either discrete or massed together in patches or in larger areas, associated with erythema, edema and pruritus. These lesions result from serous exudations in multiple areas of the sensitized capillaries of the skin. Larger, sago grain, shotty, deep-seated lesions often occur on the palms, because of the thick corneum. Rubbing breaks the papules, with resultant oozing, crusting and, later, thickening, cracking and scaling. The degree of allergy may vary at weekly intervals or longer. This explains in part the recurrent attacks or exacerbations, with the intervening relief or persisting dryness, scaling or thickening. The "nummular" character of the lesions in some of these patients (see figures) substantiates my opinion that food allergy is one important cause of nummular eczema in any area of the skin.

SECONDARY ACTIVATORS OF DERMATITIS

The skin of the hands and fingers is irritated more than that of any other cutaneous area. Thus, the irritation of the hands from water, soap and heat from cooking, washing and housework and from irritants in occupations and recreations probably activates a potential sensitization to foods in the skin of the hands. The preponderance of eczema of the hands and fingers in young women favors the irritation from routine housework and especially from the washing of clothes, diapers and dishes as secondary activators of the primary food allergy. Dermatitis may start or persist under or near rings. Irritation from rings may activate atopic allergy to food.

Some occupational dermatitis of the hands and fingers may be due to similar activation of potential allergy to food or of inhalant or other atopic allergy in the skin by industrial irritations. If allergy to food is controlled, then the occupational irritants will produce little or no dermatitis. Atopic dermatitis due to food allergy previously attributed to industrial causes is exemplified in cases 7, 8 and 9.

STUDY OF POSSIBLE FOOD ALLERGY

Food allergy should be suspected when the dermatitis is of the character described and is perennial or recurrent in nature. Exaggeration in the fall, winter and spring also suggests food allergy.[7] Moreover, variations in the dermatitis may be due to the fluctuation in the degree of food allergy. Favoring food allergy, moreover, is a history of perennial or winter eczema, particularly in infancy, and a history of other allergic manifestations often due to food allergy (see table 8). In addition, a definite family history of such allergic manifestations and a dietary history of probable idiosyncrasies or dislikes for specific foods suggest food allergy. As shown in tables 7 and 8, a positive dietary history and a personal or a family history of allergy are not necessarily present in these patients.

Recently, Coca has reported an accelerated pulse rate after the ingestion of an allergenic food,[10] and Rinkel [11] has advised individual feeding tests to determine food allergies. In contrast to these tests my elimination diets [9a] seem advantageous for the following reasons: 1. They are the only standardized trial diets generally used during the last two decades for the study of possible food allergy. 2. They are the only diets containing specific foods, detailed menus and tested recipes for bakery products. 3. When accurately used, maintenance of nutrition and weight is assured; this is important, since allergenic foods usually have to be excluded for two or more weeks, as shown in table 12, before atopic dermatitis due to food allergy improves. 4. The diets, with the recommended calcium and vitamins, protect nutrition so that allergenic foods can be eliminated for weeks, months or even years, as necessary to establish maximum relief from the dermatitis and to prevent its recurrence. 5. The use of the diet is simple to learn. The menus, recipes and directions for the use of the diets can be given to the patient by a trained office assistant, dietitian or physician.

When food allergy is suspected, the cereal-free elimination diet 1, 2 and 3 usually is advised. This diet, with menus and recipes, is available for adults, infants and also children.[9a] If the dietary history indicates possible allergy to any food in the diet, another food may be substituted. Definite cutaneous reactions by the scratch test with dependable allergens also indicate possible allergy. Thus, if soy is suspected, rice or corn may be substituted. If allergy to fruit is suspected, the fruit-free elimination diets are available.[9a] If improvement in the dermatitis is not evident after three or four weeks of accurate diet trial, then diets 1 and 2 or one of the supplemental elimination diets may be

10. Coca, A. F.: Familial Nonreaginic Food-Allergy, Springfield, Ill., Charles C Thomas, Publisher, 1943.

11. Rinkel, H. J.: Food Allergy, Ann. Allergy **2**:504, 1944.

tried. Rarely, one meat, one starch, sugar, tea or maté, calcium and vitamins C and D and later other vitamins may be justifiable for diet trial, provided enough calories are eaten to prevent undesirable loss of weight. When improvement is satisfactory, individual foods can be added, one daily for three to five days, excluding any which reproduce the dermatitis.

SPEED AND DEGREE OF IMPROVEMENT FROM ELIMINATION OF ALLERGENIC FOODS

Decrease in itching and in the number of new papulovesicular lesions may arise within a week after the start of the elimination diet. Usually improvement is not evident for two weeks. The varying speed of relief probably depends on the time the allergens of previously eaten foods remain in the body and on the degree of cellular change arising from food allergy. When the allergens are retained longer than usual, especially when there is a former history of recurrent attacks of the dermatitis, a moderate exacerbation may develop, even two to four weeks after the start of the proper elimination diet.

As the correct diet is accurately maintained, the disappearance of the allergic reactivity in the skin allows the cells to return gradually to their normal structure and function. Dermatitis in other areas of the skin also is benefited, and other manifestations of food allergy, if present, usually are relieved.

The skin at times does not return to a perfectly normal state. A few papulovesicular lesions and a slight amount of erythema, itching or scaling may recur, and a thickening of the sensitized skin may continue. Several reasons are suggested for this incomplete relief: 1. Allergenic foods may be in the patient's diet due to unintentional or overt breaks in the diet. Moreover, it may be impossible or unwise to eliminate every food to which slight allergy exists. 2. Irritants such as soap, water, heat, sun, wind, chemicals and mechanical stimuli may produce moderate nonspecific reactions in the skin of the hands even though the specific allergenic causes are eliminated or controlled.

The excellent or good relief in all these patients allows most of them to use their hands in their occupations or homes with little or no protection. In a small minority of cases, the use of gloves reduced slight persistent dermatitis.

CONTROL OF ASSOCIATED ALLERGIES

When pollen allergy is indicated by the history, with or without positive cutaneous reactions, hyposensitization is required.[1] Other inhalants, including animal emanations, miscellaneous inhalants and house and other types of dust must also be suspected, especially if

the history or cutaneous reactions suggest such allergy. My experience indicates that the latter causes are rare.

The possibility of allergy to Trichophyton, Monilia or other fungi must be remembered. This especially is necessary when fungi are demonstrated by microscopic examination or culture of material from the skin or nails of the hands or feet. Without such proof, as pointed out by Wise and Wolf in 1936,[2] by Ayers and Anderson in 1942 [12] and by Downing [13] in 1944, the diagnosis of fungous allergy usually is incorrect. When food allergy is complicated with probable fungous allergy, hyposensitization with a stock trichophytin-oidiomycin antigen is advisable. The initial doses should be of weak dilutions, even of a 1 to 10,000,000 strength, with gradual increases as tolerated.

Contact allergy may exist when food allergy is the major cause of dermatitis of the hands. Certain patients learn that local reactions occur to fruits, vegetables and, to a lesser extent, other foods. If atopic allergy to milk, eggs, wheat, fish or other important foods is evident or suspected, the presence of such foods on the skin may cause an atopic type of reaction by their transepidermal penetration. In addition, allergy from other substances contacted by the patient's hands infrequently complicates atopic dermatitis of the hands due to food allergy.

SUMMARY AND CONCLUSION

Dermatitis of the hands in the average population may result more frequently from atopic allergy to food than from any other cause. In a series of 182 patients with the major evidence of dermatitis on the hands, atopic allergy to food was responsible in 44 per cent, 80 per cent of whom were females.

The dorsa of the hands or fingers were affected much more frequently than either the palms or the ventral aspects of the fingers. In 75 per cent of the patients other areas of the skin were moderately involved.

The average duration or the recurrence of persistent dermatitis of the hands was seven years, the periods varying from over ten years to six months.

Increase of dermatitis of the hands during the fall, winter and spring months often occurs in food-sensitive persons. A family or personal history positive for allergy and a dietary history suggestive of food allergy are not necessarily present. Atopic allergy to pollen required therapy along with the more important food allergy in 24 per cent of the patients. Fungous allergy required control in only 3 patients.

12. Ayers, S., Jr., and Anderson, N. P.: So-Called Fungus Infections of the Hand, California & West. Med. **16**:63, 1942.

13. Downing, J. G.: Dermatophytosis and Occupational Dermatitis, J. A. M. A. **125**:196 (May 20) 1944.

Irritations of the skin of the hands from housework especially and also from other occupations and avocations help to activate a potential sensitization to food in the skin.

Atopic allergy to food activated by industrial irritants at times is responsible for dermatitis of the hands wrongly attributed to contact industrial dermatitis.

The diagnosis and control of food allergy in these 80 cases of atopic dermatitis of the hands were possible because of my use of the standardized elimination diets and the realization of the fallibility of the cutaneous test for the determination of allergenic foods.

REPORT OF CASES OF DERMATITIS OF THE HANDS DUE TO FOOD ALLERGY

CASE 1.—A girl aged 16 years was first studied in January 1943 because of a papulovesicular oozing and crusting dermatitis of the fingers and hands during the preceding seven years. It first developed on the dorsum of the thumb on the

Fig. 1 (case 1).—Nummular eczema on the dorsum of the left hand, on the dorsum of the fourth finger on the left hand and on the dorsum of the end of the third finger on the right hand, due to atopic food allergy.

left hand after a furuncle. Since then attacks lasting from two weeks to six months have recurred, being worse in the winter months, involving the interdigital surfaces and the dorsum of the fingers and the dorsum of the left hand. For the last five years the third finger of the right hand has been affected. Even with many roentgen ray treatments, ointments and compresses, relief had never lasted for more than a few weeks. The patient suspected soap, water and Clorox as activating causes.

No previous cutaneous eruptions had occurred, and there was no history of any other allergic manifestations. Her dietary history gave no suggestion of possible food allergy. Her environmental history also was negative for possible allergy. Her family history revealed childhood asthma in the mother. The tonsils and appendix have been removed.

Physical examination was noncontributory except for the eczema of the hands. No epidermophytosis was found. Results of the blood and urinalyses were normal.

Testing of the skin by the scratch method with all important food and inhalant allergens elicited negative reactions.

To study possible food allergy as a cause of this long-standing dermatitis of the hands, my cereal-free elimination diet was prescribed. One-half teaspoon of precipitated calcium carbonate and 10 drops of synthetic oleovitamin D were ordered. In one week the dermatitis was decreasing. In one month there was slight scaling on the third finger and in a small area of the dorsum of the left hand. During the next five months the dermatitis was well controlled in spite of the gradual addition of rice, corn, rye, fish and various vegetables, fruits and eggs. Tomato caused a slight eruption on the hand on one occasion. Since then only slight dermatitis has been present at times in spite of her return to an unrestricted diet, even though she has washed dishes and clothes and has done housework without gloves.

Comment.—The skin of the hands and the fingers had been the only shock organ of allergy to foods for seven years. The exaggeration of food allergy, moreover, occurred during the winter months. The relief of the dermatitis even with the resumption of a general diet in six months illustrates the increased tolerance for allergic foods which arises after their exclusion from the diet for a few months in some patients.

Case 2.—A woman aged 30 was first studied in February 1939, because of an eruption on the backs of her hands, characterized by papulovesicular lesions, followed by oozing, crusting, itching and thickening of the skin. Occasionally, slight itching and a few lesions occurred on the palm. No other areas have been involved except for slight dermatitis on the ventral part of the wrists and on one occasion on the right heel and lobe of the left ear. This dermatitis first appeared thirteen years ago, in February, lasting for two or three months and recurring in the same months for the next seven years. After marriage the dermatitis increased in extent and continued throughout the year, still being exaggerated in the early spring months. The elimination of wheat, egg, mackerel, milk, rutabaga, shad, soybean, chard and lettuce, to which positive reactions had been obtained in 1934, had decreased the degree of dermatitis but had not satisfactorily controlled it. The patient had found that the oil from wood in a cedar chest and from pine cones exaggerated the eruption.

Since the age of 17, epigastric heaviness, sour stomach and belching had occurred intermittently and sharp pain had been present at times in the right lower quadrant.

The dietary history revealed no dislikes or definite idiosyncrasies for any food, though the elimination of the foods noted had decreased the degree of the eruption.

The family history showed sick headaches and moderate eczema on the face in the mother. One sister had eczema on the hands.

Her physical examination was noncontributory except for the dermatitis on the backs of the hands. Her blood and urine were normal, and reactions to Kahn tests were negative. Roentgen ray examinations of her gastrointestinal tract and analysis of the contents of her stomach were noncontributory.

Testing of the skin with all important food and inhalant allergens by the scratch method gave no reactions. Intradermal tests with all important foods gave 1 plus reactions to wheat, milk, chicken, barley, eggplant and artichokes.

For the study of possible food allergy my cereal-free elimination diet, 1, 2 and 3 was ordered. In one week, the dermatitis improved and the gastrointestinal

symptoms had decreased. In another two weeks the eruption was definitely better, though the skin was still rough and moderately thickened. In three months the dermatitis had entirely disappeared, and it remained absent until an eruption on her wrists developed in September, from a break in her diet. Rice, corn, rye, additional vegetables, fruits and turkey gradually were added. Coffee reproduced the eruption. Citrus fruits also produced slight dermatitis. Milk, egg and wheat are especially detrimental. With the continued use of this elimination diet, the dermatitis has remained absent in spite of the patient's doing her routine housework without protection to her hands.

Comment.—The dermatitis of the hands in this case increased after marriage, owing to the increased irritation of the skin from housework and cooking. The excellent control of the dermatitis with the elimination diet compared with the unsatisfactory control with the former so-called test-negative diet is shown by this record. Cutaneous reactions obtained in 1934 and recently by me do not harmonize, again indicating the fallibility of the cutaneous test in the diagnosis of food allergy.

Case 3.—A woman aged 26 was first studied in December 1942, because of a papulovesicular oozing, crusting and scaling dermatitis of the knuckles and the interdigital surfaces of both hands of two years' duration. In the last two months it also had involved most of the dorsum and sides of the first two fingers of each hand. No other dermatitis had ever occurred except for a slight rash on the right arm and face during the last twenty-four hours.

Coryza with sneezing after arising had been present for six years, nonseasonal in nature. Bilious headaches had occurred in childhood. The dietary history indicated no dislikes or idiosyncrasies for any foods. The environmental history was noncontributory from the viewpoint of allergy. The family history revealed severe eczema in childhood in one aunt and vomiting from milk in the maternal grandmother. The patient's daughter has mild bronchial asthma. Her physical examination and analyses of the blood and urine were noncontributory except for dermatitis, as recorded. Cutaneous testing with all important food and inhalant allergens by the scratch test elicited negative reactions.

Since food allergy was indicated by the history of the dermatitis, the perennial nasal allergy, the former recurrent sick headaches and the family history my cereal-free elimination diet was used to study such possible allergy. In two weeks no itching and no papulovesicular eruptions were present, and in one month the eruption was practically absent even though the patient had had her hands in water and had used a mild soap. Since then all foods have gradually been added to the original diet.

Dermatitis of the hands has occurred several times when milk or its products have been ingested. A moderate eruption also occurred when apple was eaten.

In addition, because of a moderate eruption, with itching on the dorsum and sides of two or three fingers after the patient had picked flowers, and because of possible allergy to house dust, hyposensitization with a 1 to 50,000,000 dilution of a multiple pollen antigen and a 1 to 500,000 autogenous dust antigen was given at weekly intervals. The injections were discontinued one and one-half years ago. During the last year the dermatitis has been absent except when definite amounts of milk have been taken for more than two or three days. She wears no gloves during her housework; Clorox, soap and even dishwater do not reproduce dermatitis on the hands.

Comment.—The dermatitis in this case developed soon after housekeeping was started. With the elimination of milk and its products, the washing of dishes and clothes and cooking have produced no eruption. The continued control without

hyposensitization with pollen and dust antigens suggests that such treatment was of little or no importance compared with the control of food allergy.

CASE 4.—A man aged 37 was first seen on Feb. 10, 1939, because of patches of a papulovesicular oozing, crusting and scaling dermatitis on the backs of both hands, the ring finger on the right hand, the index finger on the left hand and the lower lateral surfaces of the forearms, which developed in the fall of 1935, continuing until the late spring months and clearing entirely in the summer months. Since then the dermatitis has recurred each fall, reaching a maximum in December and January, and has gradually decreased to its disappearance in June. During the first three years the patient worked in a steel foundry in Milwaukee. In the last one and one-half years he has lived in Oakland, Calif., as a salesman of steel products. Roentgen ray treatment, ointment and compresses given by two dermatologists have not changed the natural course of the dermatitis.

He gave no history of previous dermatitis or any other manifestation of allergy. His dietary history revealed a dislike for milk, with no other dislikes or idiosyncrasies for any foods. He gave a family history of sick headaches in the maternal grandfather and in the mother.

Physical examination was noncontributory except for irregular patches of dermatitis on the backs of both hands, with a small patch on the ring finger of the right hand and on the index finger of the left hand. Scaling and thickening of the skin on the outer side of the lower part of the right forearm were observed. Scaling was present between several toes. His blood and urine were normal, and reactions to Kahn tests were negative.

Cutaneous testing with all important foods and inhalant allergens by the scratch tests elicited negative reactions. Intradermal tests with all important inhalants gave 1 or 2 plus reactions to Bermuda grass, rough pigweed, spearscale, western ragweed, chrysanthemum, dahlia and red rose pollens and to dog and horse hair, silk, orris root, cottonseed and stockhouse dust allergens. A patch test with nickel elicited a negative reaction.

Since the type of dermatitis and its occurrence during the fall, winter and spring months suggested food allergy as the probable cause, my cereal-free elimination diet 1, 2 and 3 was ordered. In two weeks the dermatitis was "400 per cent better," and in another week it was hardly visible. Two weeks later a slight recurrence developed from a brief break in the diet. Other foods were gradually added, and by May, when the dermatitis had disappeared in previous years, a general diet was being taken. In the last six years no foods have been excluded, even in the winter. The patient has had slight dermatitis on the backs of the hands and of some fingers, but it has been so slight that the elimination diet and local therapy have not been necessary.

Comment.—In this case the eczema of the hands during winter was due to food allergy, as evidenced by the rapid relief with the use of the elimination diet. The increased tolerance for allergenic foods resulting in some cases from their elimination for a few months probably explains the absence of the severe eczema in the last six years even though a general diet has been taken. The record also shows the fallibility of the cutaneous tests. Negative reactions occurred to foods which were responsible for the dermatitis, and positive reactions occurred to inhalants which were not responsible for any obvious clinical allergy.

CASE 5.—A woman aged 34 was first studied in October 1943, because of a papulovesicular crusting and scaling dermatitis which had developed two and one-half years before on the ring finger of the right hand, recurring on this finger and its interdigital areas for several months. Then both palms and the palmar

and lateral surfaces of most of the fingers gradually were involved, continuing ever since with intermittent exaggeration and with a definite increase during the late fall, winter and early spring months. Treatment with many ointments and with roentgen rays, ultraviolet irradiation and infra-red rays by several physicians, including two dermatologists, had been of no lasting benefit. Washing dishes had been omitted entirely for nearly two years.

Analysis of the history revealed no other allergic manifestations except for canker sores from walnuts and dermatitis from contact with citrus fruits.

Her dietary history indicated no dislikes or idiosyncrasies for any foods except walnuts and citrus fruits, as noted.

Her environmental history gave no helpful information as to the cause of the dermatitis. She had worked as a stenographer for three and one-half years.

Her family history revealed that her brother had hay fever.

Cutaneous testing by the scratch method with all important foods elicited negative reactions. Patch tests with the peel of lemon, orange and grapefruit gave positive reactions, but avoidance of the fruits had not decreased the dermatitis on the hands.

For the study of possible food allergy she was given my cereal-free elimination diet minus citrus fruits and tomatoes. Compresses with solution of aluminum acetate diluted 1 to 40 relieved the itching and the oozing. Definite decrease in the eruption and itching occurred in about ten days after the start of the diet. In two months the dermatitis has disappeared except for slight roughness and scaling between the fingers and on the palms. After egg had been eaten daily for ten days a definite eruption occurred, continuing for two weeks after the exclusion of egg from the diet.

In the last one and one-half years the dermatitis has been well controlled, allowing the washing of dishes and clothes and the use of mimeograph paper and her stenographic work, without the recurrence of the dermatitis. Rice, corn and rye have been added to the diet, with no resultant dermatitis. Contact with citrus fruits and tomato still produces an eruption. A small amount of wheat and milk for a few days can be eaten, without any dermatitis. Her weight has remained at 134 pounds (60.8 Kg.), and her nutrition is well protected. Calciferol, precipitated calcium carbonate and vitamin C have been administered.

Comment.—In this patient the dermatitis of the hands was confined to the palms and to the ventral surfaces and sides of the fingers. The dorsa of the hands were free. The increased activity of food allergy in some patients during the fall to spring months is evidenced in this history. The associated contact allergy to citrus fruits, to which positive reactions to patch tests were obtained, is of interest. The delay in the reappearance of the eczema until egg had been eaten for ten days indicates a cumulative type of allergy to this food.

CASE 6.—A woman aged 32 was first seen in November 1941, because of a papulovesicular crusting and at times an oozing type of eruption on the backs and sides of the second and third fingers on the left hand and the second finger on the right hand and a circumscribed area about 2½ inches (6 cm.) in diameter on the dorsum of the right hand and a small patch about 1 inch (2.5 cm.) in diameter on the dorsum of the left hand. It had started in 1932 on the third finger of the left hand, spreading to the second finger of each hand soon afterward. Since then it has persisted on the fingers, involving the dorsum of the hands in recent months.

The dermatitis had always been exaggerated during her periods and had disappeared entirely during pregnancy.

There was no previous history of any other manifestation of allergy. Her dietary history revealed no evident dislike or idiosyncrasy for any food. She gave a family history of dermatitis of the hands in an uncle and recurrent headaches in a mother and a sister. Cutaneous testing by the scratch method with all important foods and inhalant allergens elicited negative reactions.

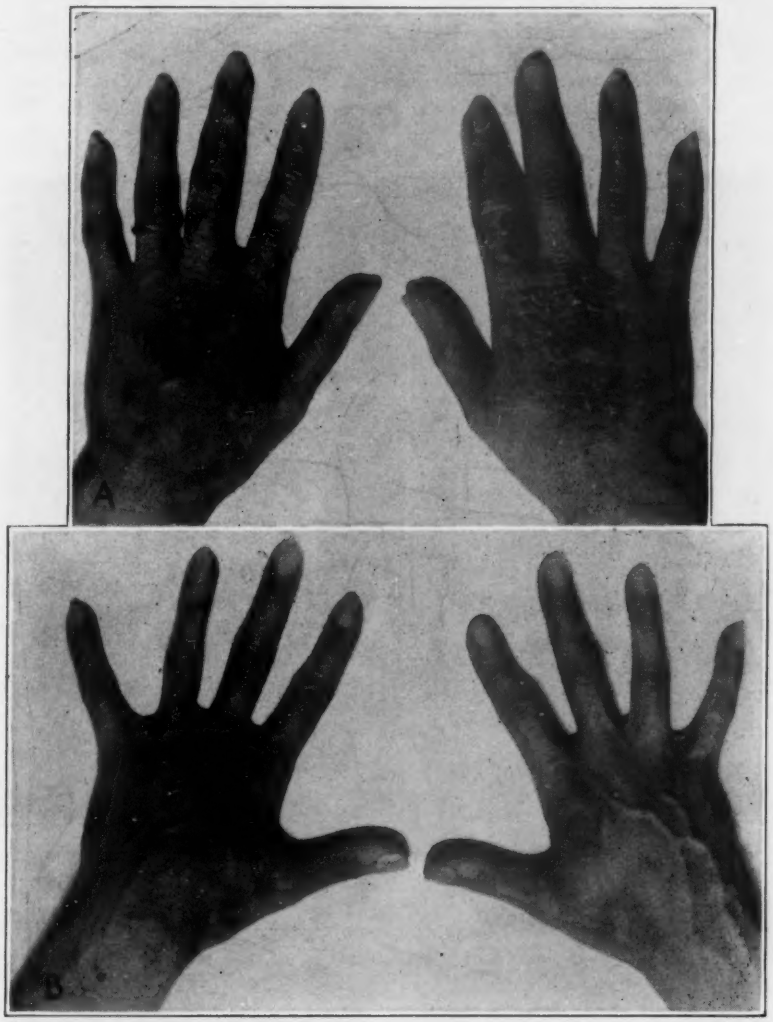

Fig. 2 (case 6).—*A*, atopic dermatitis of hands before the use of elimination diets, November 1941. *B*, after use of elimination diets, November 1942.

Food allergy was suspected as the cause of this dermatitis of the hands. The cereal-free elimination diet therefore was ordered for the study of such allergy. In two weeks "remarkable clearing" of the dermatitis occurred, and in two months all the eruption was absent except for a slight scaling on the ends of the index

fingers. No local therapy was administered at this time except for the application of petrolatum.

During the rest of the year she was able to work in the garden and perform her housework and cooking with little or no dermatitis in the formerly involved areas. In the last three years she has refused to follow accurately the elimination diet, and moderate to severe dermatitis has been present most of the time.

Comment.—The rapid improvement and the final disappearance of the dermatitis with the proper use of the elimination diet indicates atopic food allergy as the cause. The increase or development of allergic manifestations during menstrual periods in some women is illustrated in this case. The disappearance of the dermatitis is not so frequent as is the disappearance of bronchial asthma during

Fig. 3 (case 7).—Atopic dermatitis of the (*A*) dorsal and (*B*) palmar surfaces of the hands due to food allergy.

pregnancy, due to probable refractoriness or anergy. The return of the eczema when the diet was broken shows the necessity of the prolonged and accurate elimination of allergenic foods.

CASE 7.—A woman aged 35 was first seen in June 1941, because of an itching, papulovesicular oozing, crusting and, later, thickened and scaling type of dermatitis on the dorsa and palms of the hands, varying in degree during the last two years. It had developed at the age of 16 on the lateral surface of the index finger of the right hand, gradually spreading to the dorsum and palm and other fingers of both hands and to a lesser degree to the face, neck and forearms. Since then it has persisted on the hands in varying degrees, being practically absent for three years without apparent reason up to two years before she was seen.

Bilateral frontal headaches for several months, exaggerated during her periods, suggested possible food allergy as a cause. Her dietary history revealed a dislike for milk since babyhood. Her environmental and family histories were noncontributory from the viewpoint of allergy, except for a known exaggeration of her dermatitis on her hands due to Johnson's Floor Wax. Cutaneous testing by the scratch method with all important food and inhalant allergens elicited negative reactions.

Patch tests with resins of thirty vegetations gave a slight reaction to western ragweed. Patch tests with soap and polishes, labels and glue used at home and in her work as a labeler in a beverage works gave negative reactions except for a 3 plus reaction to Johnson's Floor Wax.

Results of her physical examination and the blood and urine were normal, and Kahn tests elicited negative reactions.

For the study of food allergy as a possible cause of her dermatitis on her hands, the cereal-free elimination diet was ordered. Improvement was noted in ten days, and a decided decrease of the dermatitis occurred in one month. There was additional improvement with the elimination of citrus fruits and raw vegetables from the diet. In three months there was a moderate recurrence, due to either a break in diet or a respiratory infection, acting as a nonspecific factor. For a few weeks a trichophytin-oidiomycin antigen in a 1 to 1,000,000 dilution had been given hypodermically, but improvement continued. During the last five years there has been no dermatitis of the hands, except for occasional evidences of it, probably due to a break in diet. Milk has been excluded from this diet, but all other foods in a general diet have been taken. There has been no protection of her hands in her routine housework, though she uses a mild soap.

Comment.—The rapid decrease in the dermatitis after the elimination diet was started and the subsequent and continued relief in the last six years confirm food allergy, especially to milk as the cause. The labeling of bottles probably was an activator of the potential food allergy in the skin of the hands. Since she gave negative reactions to patch tests and since there was rapid and definite relief of her dermatitis for the first three months while she continued her work the dermatitis was evidently due to food allergy. Her long-standing dislike for milk indicated clinical sensitization to this food to which the cutaneous test gave a negative reaction.

Case 8.—A man aged 40 was first seen in March 1942, because of a papulovesicular itching, crusting, scaling dermatitis on the dorsa of the hands and dorsa and sides of several fingers, present for the preceding six years. A moderate similar eruption was also present on the backs of the wrists and the sides of the ankles. The dermatitis was exaggerated in the fall, winter and early spring months, with intermittent accentuations throughout the year. Industrial dermatosis due to oil, grease and other irritants encountered in his occupation as an automobile mechanic had been diagnosed. Working as a special policemen to obviate contact with the irritants of his trade had not prevented the occurrence of the dermatitis of his hands and fingers.

Moderate nasal congestion and postnasal mucoid discharge, recurrent sick headaches and long-standing gastrointestinal symptoms indicated food allergy as a possible cause.

The blood and urine were normal and Kline tests elicited negative reactions.

Cutaneous testing with all important food and inhalant allergens by the scratch tests gave negative reactions. For the study of possible food allergy

my cereal-free elimination diet was prescribed. In two weeks there was a definite decrease in the itching and dermatitis. During the last three years it has been necessary to exclude wheat, milk, egg, chocolate and fresh fruit from the diet to prevent exacerbation of the dermatitis. He worked as an automobile mechanic, however, for the last two years, and grease, oil, soap, water and other irritants have not activated the dermatitis unless a break in the diet has occurred.

Comment.—The control of the dermatitis with the elimination diet even after his return to his former work as an automobile mechanic shows that the former dermatitis was due to food allergy rather than to industrial causes.

Case 9.—A woman aged 38 was first studied in October 1938, because of a dermatitis on the backs of the hands and backs and sides of several fingers for fifteen years. It had been perennial in nature, being exaggerated every month or so, when many papulovesicular lesions with increased erythema, burning and itching occurred, followed by crusting and scaling and finally dryness and slight cracking, which continued until the next attack. There was no other dermatitis except for a slight scaling of the neck and chest. Local treatment given by several physicians and for one and one-half years by a dermatologist had failed. The dermatitis had been attributed to her work for nineteen years in a fuse works handling black powder, asphalt, lead tubing and cotton jute. Recurrent migraine associated with headaches, nausea, vomiting, blurred vision and dazzling lights had recurred every two to four weeks, especially with her periods, since the age of 12. Epigastric burning, sour stomach and nausea have been frequent for five years.

Her dietary history indicated that egg and citrus fruit produced epigastric burning and sour stomach. Her family history revealed bronchial asthma in an uncle and sick headaches in her mother and sister.

Results of physical examination and of examinations of the blood and urine were normal, and Kahn tests elicited negative reactions.

Cutaneous testing by the scratch method with all important food and inhalant allergens in 1938 and again in 1945 gave no reactions except for a few slight ones to vegetables and nuts.

For the study of possible food allergy my cereal-free elimination diet 1, 2 and 3 was prescribed. In one week the dermatitis on the hands, the headaches and the gastrointestinal symptoms had greatly improved. The relief has continued during the last seven years, in spite of continued work in the fuse factory, with the following exceptions. With the addition of rice one month after the start of the diet, a slight eruption reappeared on the second and third knuckles of the right hand. Another exacerbation occurred on the back of the right hand and on the third finger of the left hand from eating banana, gradually decreasing in two weeks after its elimination from the diet.

During the next six months moderate exacerbations of the dermatitis of the hands and fingers occurred owing to eating of fresh fruits and tasting of forbidden foods. During the last five years the dermatitis was absent with the exclusion of milk, wheat and uncooked fruits from the diet, in spite of her continued work in the fuse factory during the war period. In June 1945, a moderate eruption of the hands and forearms developed, relieved with the elimination of fruit from her diet. The handling and the inhalation of odors of fresh fruit which she canned probably were responsible in part for the exacerbation.

Comment.—The dermatitis of the hands, present for fifteen years, in this case had been attributed to irritants encountered in the work of the patient in a fuse

factory during the preceding nineteen years. Its improvement in one week and its continued control for the last six years with the elimination of milk, wheat and uncooked fruits indicate that atopic allergy to food was the cause of the dermatitis. The recurrent exaggeration of the eczema was probably due to cyclic variations in the degree of food allergy which occurs in many patients. The relief of her migraine and gastrointestinal symptoms with the elimination diet indicates that these also were manifestations of food allergy. The recurrence of her dermatitis of the hands from allergy to ingested and probably inhaled fresh fruits is of interest.

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ANTIBACTERIAL POTENCY OF PENICILLIN SODIUM TO BETA HEMOLYTIC STAPHYLOCOCCUS AUREUS

(In Water-Soluble Bases and Glycerinated Aqueous Solution Under Varied Storage Conditions)

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SOON after penicillin was introduced to the members of the medical profession, various authors pointed out that precautionary measures should be taken to prevent destruction of its antibacterial properties through actinic, thermal and chemical destruction.

Fleming,[1] in his original paper in 1929, reported that boiling for an hour reduced the potency of penicillin and that autoclaving at 115 C. for twenty minutes completely destroyed it. Abraham and Chain,[2] in 1942, reported that aqueous solutions of the barium salt of penicillin were found to retain their activity at 2 C. for several months, at 25 C. for several weeks and at 37 C. for twenty-four hours. These solutions were also reported to be stable to atmospheric oxygen at p_H values from 5 to 7 but were early oxidized by a number of oxidizing agents, such as hydrogen peroxide and potassium permanganate. Subsequently, Kirby,[3] has reported that solutions of the sodium salt of penicillin in isotonic solution of sodium chloride maintain their full potency for a minimum of four days in the incubator and seven days at room temperature.

Penicillin has been shown to be an effective local therapeutic agent and has assumed an important role in dermatologic therapy.

In the local treatment of cutaneous diseases, the base of an ointment is often as important as the medicinal agent. In most instances in which penicillin in the form of an ointment is used in dermatology, a water-soluble base is desired.

From the Laboratory and Medical Services, Fifteenth General Hospital, United States Army.

1. Fleming, A.: On the Antibacterial Action of Cultures of Penicillium, with Special Reference to Their Use in the Isolation of B. Influenzae, Brit. J. Exper. Path. **10**:226-236 (June) 1929.

2. Abraham, E. P., and Chain, E.: Purification and Some Physical and Chemical Properties of Penicillin, Brit. J. Exper. Path. **23**:103-115 (June) 1942.

3. Kirby, W. M. M.: Stability of Penicillin Solutions at Room and Incubator Temperatures, J. A. M. A. **125**:628-629 (July 1) 1944.

In an editorial note in the *Medical Bulletin,* Number 23, Office of the Chief Surgeon, European Theater of Operations, dated Sept. 1, 1944, it was suggested to medical officers that penicillin might be incorporated in an emulsion base, medium, item number 11738, or jelly, lubricating, item number 1245200, or Brushless Shave, in order of preference, in the treatment of pyogenic cutaneous diseases.

We have used penicillin preparations locally, and the question has at times come up as to whether or not a particularly poor response to treatment might not, in part at least, be due to the use of an old preparation in which the effectiveness of the penicillin had been reduced. It seemed important, therefore, to know how long penicillin would remain effective in the commonly used preparations. Such information might prevent the discarding of preparations which were still effective and might also account for failures of treatment attributed to penicillin, which in reality were due to preparations in which the penicillin had lost its potency.

This has prompted us to follow the antibacterial potency of penicillin against beta hemolytic Staphylococcus aureus in certain preparations under varying storage conditions maintained for a period of more than one month. We have not examined the emulsion base, medium item number 11738, in combination with penicillin, because it has not been available to us.

EXPERIMENTAL STUDIES [4]

A. Preparation of Penicillin Compounds.

1. Penicillin cream A (500 Florey units of penicillin per gram of jelly, lubricating, in final product).

Penicillin	300,000 units
Jelly, lubricating	555 Gm.
Water, to make	600 Gm.

The penicillin was dissolved in 45 cc. of water and gradually incorporated into the lubricating jelly.

The lubricating jelly used was item no. 12452 of the medical department which is a water-soluble lubricant with merthiolate (sodium ethylmercuri thiosalicylate) 1 in 10,000 added as a preservative (Eli Lilly and Company).

2. Penicillin cream B (500 Florey units of penicillin per gram of brushless shaving cream in final product).

Penicillin	300,000 units
Brushless shaving cream (Coro-Shave)	555 Gm.
Water, to make	600 Gm.

This is prepared in the same manner as penicillin cream A.

3. Penicillin in glycerinated aqueous solution (500 Florey units of penicillin in water containing 5 per cent of glycerin).

3a. Editorial, M. Bull. Europ. Theat. Op., 1944, no. 23.

4. Technical assistance in the performance of these experiments was given by Technician, Fourth Grade, Frederick Bruder, Medical Department, Army of the United States.

B. Storage of Penicillin Preparations.

1. Penicillin creams A and B were distributed in brown glass and transparent glass jars having screw cap lids. The jars measured 6 by 6.5 cm. One set of each was held at room temperature and the other at refrigerator temperature (4 C.).

2. The penicillin solution (A 3, aforementioned) was distributed in brown glass and transparent glass bottles with a capacity of 30 cc. The bottles were stoppered with corks, and one set held at room temperature and the other at refrigerator temperature (4 C.).

3. No attempt was made to protect the containers from light.

C. Test Organism.

1. The test organism was a beta hemolytic strain of Staph. aureus. A twenty-four hour nutrient broth culture was used for inoculating the test mediums.

D. Assaying of Antibacterial Potency of Penicillin Preparation.

1. Penicillin Creams: Twenty cubic centimeter quantities of blood agar base were melted and cooled to 45 C. To this was added 1 cc. of broth culture of the test organism. This was mixed and poured into a sterile Petri dish and allowed to solidify. Then a circular plug of agar, 1 cm. in diameter, was removed from the center of the plate. The "cup" thus prepared was filled with the cream to be tested. The plates were then incubated at 37 C. for twenty-four hours, at the end of which time the radius of the zone with no hemolysis (zone of inhibition) surrounding the "cup" of penicillin cream was measured in millimeters.

Plates were prepared in this manner from penicillin creams A and B after they had stood for periods indicated in table 1.

TABLE 1.—*Effect of Temperature and Storage Conditions on Antibacterial Potency of Stored Penicillin Cream Preparations*

Type of Penicillin Preparation	Type of Container	Storage Temperature	Inhibition Zone (Radius in mm.) After Storage for:					
			0	7	14	21	28	35 Days
Penicillin cream A	Brown glass	4 C.	14*	15	16	14	13	11
			14	15	15	14	13	11
Penicillin cream A	Brown glass	Room	14	13	13	5	4	2
			15	13	12	5	4	2
Penicillin cream A	Transparent glass	4 C.	15	16	17	13	13	11
			13	15	17	14	14	11
Penicillin cream A	Transparent glass	Room	15	13	13	5	4	2
			14	13	12	5	4	2
Penicillin cream B	Brown glass	4 C.	15	17	18	14	15	12
			16	17	19	15	15	11
Penicillin cream B	Brown glass	Room	15	12	13	6	0	0
			16	15	12	8	7	0
Penicillin cream B	Transparent glass	4 C.	16	17	19	14	15	12
			16	17	18	14	15	12
Penicillin cream B	Transparent glass	Room	15	14	13	4	4	0
			16	15	15	8	8	5

* The upper figure in each block represents reading for material taken from the surface and the lower figure for a sample taken from the bottom of the container.

2. Glycerinated Aqueous Solution of Penicillin: Plates were prepared and inoculated as they were for Penicillin creams A and B mentioned previously. A modification of the method described by Epstein and associates [5] was used.

5. Epstein, J. A.; Foley, E. J.; Perrine, I., and Lee, S. W.: Convenient Assay Method for Penicillin and Similar Substances, J. Lab. & Clin. Med. **29**: 319-320 (March) 1944.

Squares of sterile filter paper (1 cm.) were soaked in the solutions and placed in the centers of the inoculated plates. Results were read as described for penicillin creams A and B and are shown in table 2.

TABLE 2.—*Antibacterial Potency of Stored Penicillin Solution (Penicillin in 5 per Cent Glycerinated Aqueous Solution)*

Container	Storage Temperature	Inhibition Zone (Radius in Mm.) After Storage for Various Numbers of Days											
		1	3	5	7	9	12	14	19	23	27	34	42
Brown glass	4 C.	22	13	11	13	15	15	16	14	11	11	10	7
Brown glass	Room	21	10	10	10	8	11	0	0	0	0	..	..
Transparent glass	4 C.	22	12	12	12	13	17	16	15	12	12	11	7
Transparent glass	Room	23	11	11	11	10	16	5	2	0	0	..	..

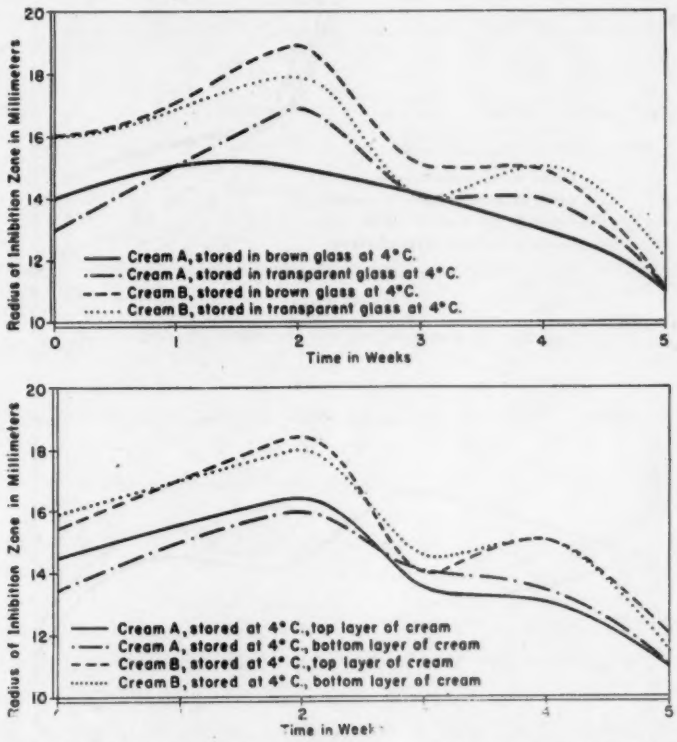
Radius of Inhibition Zone in Millimeters
Time in Weeks
Cream A, stored in brown glass at 4° C.
Cream A, stored in transparent glass at 4° C.
Cream B, stored in brown glass at 4° C.
Cream B, stored in transparent glass at 4° C.
Radius of Inhibition Zone in Millimeters
Cream A, stored at 4° C., top layer of cream
Cream A, stored at 4° C., bottom layer of cream
Cream B, stored at 4° C., top layer of cream
Cream B, stored at 4° C., bottom layer of cream

Fig. 1.—Upper chart, effect of light on the potency of penicillin in creams. Lower chart, effect of air on the potency of penicillin in creams stored at 4 C.

RESULTS

1. It is readily apparent from the data in tables 1 and 2 that the antibacterial potency of penicillin in combination with the substances tested deteriorates as rapidly in brown glass containers as in transparent glass containers. This is shown graphically in figure 1.

2. Refrigerator temperatures (4 C.) have a definite effect in preserving the antibacterial potency of the penicillin preparations examined

as contrasted with room temperatures (March and April in Belgium) (fig. 3). This is more noticeable in the case of creams than with the glycerinated aqueous solution.

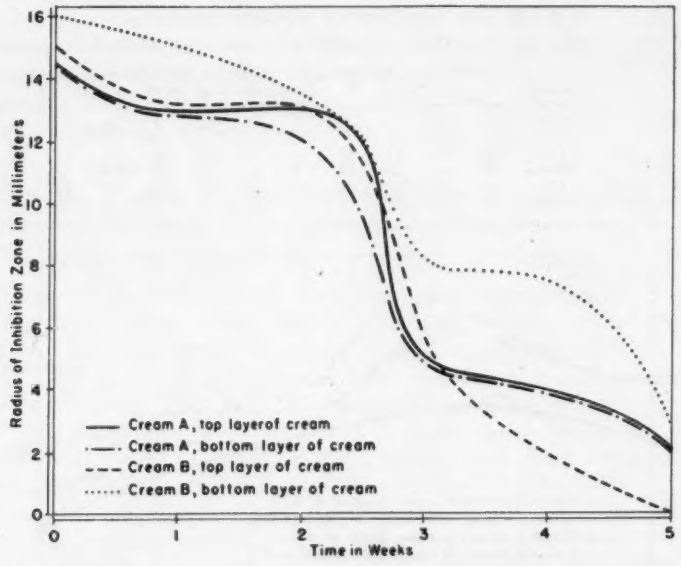
Radius of Inhibition Zone in Millimeters
Time in Weeks
Cream A, top layerof cream
Cream A, bottom layer of cream
Cream B, top layer of cream
Cream B, bottom layer of cream

Fig. 2.—Effect of air on the potency of penicillin in creams stored at room temperature.

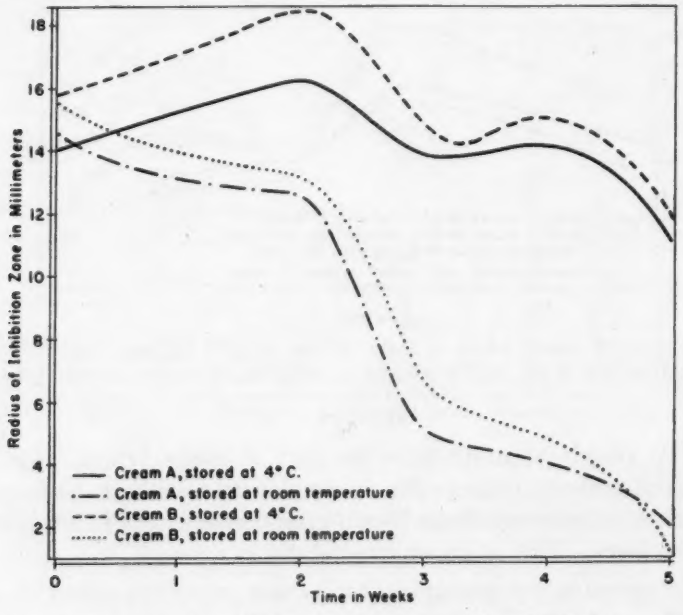
Radius of Inhibition Zone in Millimeters
Time in Weeks
Cream A, stored at 4° C.
Cream A, stored at room temperature
Cream B, stored at 4° C.
Cream B, stored at room temperature

Fig. 3.—Effect of refrigeration on the potency of penicillin in creams.

3. The antibacterial potency of penicillin in combination with brushless shaving cream is not retained to the extent that it is when combined with water-soluble lubricating jelly when stored at room temperatures. This is not the case when the products are held at refrigerator temperature.

4. Approximately 50 per cent [6] of the antibacterial potency of penicillin is lost within the first three days, regardless of the type of storage, when in a 5 per cent glycerinated aqueous solution. After the rapid initial drop, the potency remains approximately unchanged during the following eight days regardless of the type of storage. After eight days of storage there is a rapid decline in potency of the penicillin

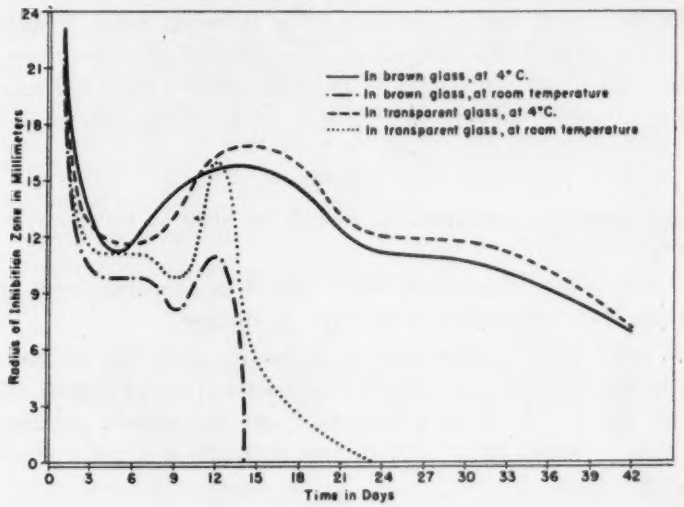

Fig. 4.—Effect of storage conditions on the potency of penicillin in aqueous solutions.

at room temperatures, while at 4 C. there is not much fall during the succeeding twenty-five days, after which the potency begins to diminish relatively rapidly (fig. 4).

5. In the case of the creams, the loss of antibacterial potency is approximately the same at the surface and at the bottom of the container regardless of the type of storage for the water-soluble lubricating jelly but slightly greater at the surface in the case of brushless shaving cream (lower curves of figures 1 and 2).

6. Penicillin in water-soluble lubricating jelly retains 79 per cent of its antibacterial effect on beta-hemolytic Staph. aureus after thirty-

6. Percentage calculations were made from the decrease in millimeters of the zone of inhibition compared to the zone of inhibition of the fresh preparation in millimeters.

five days when stored at 4 C. When the same preparation is stored at room temperature, 86 per cent of the potency is retained after two weeks, following which it falls rapidly to 12 per cent after thirty-five days.

7. Penicillin in brushless shaving cream retains 89 per cent of its potency after thirty-five days when stored at 4 C. When this material is stored at room temperature, 85 per cent of the original potency is retained after fourteen days, followed by a fall to 42 per cent during the succeeding seven days, and after thirty-five days less than 1 per cent of the original potency is retained.

8. In the case of penicillin in water with 5 per cent glycerin, 42 per cent of the original antibacterial potency has been lost after three days when stored at 4 C. and 52 per cent when stored at room temperature. At 4 C. 32 per cent of the original potency remains after forty-two days, while at room temperature only 11 per cent remains after fourteen days and none at twenty-three days. This is shown graphically in figure 4.

CONCLUSIONS

1. All penicillin preparations should be kept at refrigerator temperature.

2. Aqueous solutions of penicillin should be prepared fresh at least every three days, regardless of the type of storage.

3. When kept at refrigerator temperature, penicillin in the water-soluble bases tested retains sufficient antibacterial activity to be effective after one month. At room temperature, the decrease in potency after two weeks is sufficient to render the preparations ineffective therapeutically.

4. The type of glass in which the preparation is stored does not influence the rate of antibacterial deterioration of penicillin in the preparations studied.

5. It would appear that in the case of highly porous water-soluble bases the rate of destruction of the antibacterial activity of penicillin is slightly greater near the surface than at the bottom of the container when storage is at room temperature.

Duke Hospital, Durham, N. C. (Dr. Barefoot)

USE OF PRESSURE BANDAGES IN THE TREATMENT OF PEMPHIGUS

Report of A Case

KATHLEEN A. RILEY, M.D.
DURHAM, N. C.

THE USE of pressure bandages is a well recognized procedure in the treatment of extensive burns. Accordingly, pressure bandages were used in a case of pemphigus foliaceus. There were large denuded areas of skin on all the extremities and on the trunk. The original purpose was an effort to relieve the patient of local pain. This was achieved, but also within forty-eight hours all the lesions showed definite epithelial growth. Within two weeks, all denuded areas were epithelized, and the patient showed general improvement with no recurrence of bullae.

This procedure seems worthy of trial as a means of stimulating epithelial growth and as a practical aid to the nursing problem in pemphigus.

REPORT OF A CASE

J. T., a 27 year old single Negro woman, a domestic servant, was admitted to Duke Hospital because of a bullous eruption. The family history and past history were noncontributory.

Present Illness.—Seven weeks before admission, the patient received a small burn with formation of a blister on the upper part of her chest. During the following twenty-four hours bullae without surrounding erythema formed over her entire chest. Crops of bullae continued to appear until within one week the lesions covered her entire head, trunk and the proximal portion of all extremities. There was some nausea and vomiting associated with new outbreaks of bullae; otherwise the patient was asymptomatic. Previous local treatment had been ineffective.

There was a history of the use of one bromide powder each week during the present illness. This was the only history of drug ingestion obtainable.

Physical Examination.—Examination showed a well developed, well nourished Negro woman in much pain.

The entire face, head, trunk and upper portion of the arms and legs were covered with large crusted foul scaling lesions. Many of the scales had separated from the skin, leaving clean denuded areas. All mucous membranes were intact. The eyes were swollen, almost closed and filled with a pustular exudate. The conjunctivas were injected but were intact. Otherwise the general physical examination revealed no abnormality.

From the Division of Dermatology and Syphilology of the Department of Medicine, Duke University School of Medicine, Durham, N. C.

Laboratory Data.—The results of the examination of the blood were as follows: The hemoglobin content was 68.4 per cent; red blood cells, 4,170,000 per cubic millimeter; and white blood cells, 8,000 per cubic millimeter. The differential white blood cell count showed polymorphonuclear leukocytes, 70 per cent; lymphocytes, 13 per cent; eosinophils, 16 per cent, and monocytes, 1 per cent. The sedimentation rate was 19 mm. per hour. The urine was normal. Kahn, Kline, Wassermann and Mazzini reactions were negative. Total plasma proteins were 6.2 Gm., with an albumin-globulin ratio of 0.71. Blood bromides were 14 mg. per hundred cubic centimeters. The Pels-Macht phytopharmacologic test reading was 63 per cent, which is considered to be consistent with a diagnosis of pemphigus. Roentgenologic studies of the lungs revealed no abnormality. The diagnosis of pemphigus was confirmed by histopathologic examination.

Treatment and Course in Hospital.—A diagnosis of pemphigus foliaceus was made. The patient was given local therapy, consisting of tub baths each day in a 1:4,000 solution of potassium permanganate and applications of 1 per cent methylrosaniline chloride in 10 per cent alcohol twice daily and boric acid ointment. She was also given penicillin, 5,000 units every three hours up to a total dosage of 2,440,000 units, high vitamin and caloric diet, accessory vitamins and 250 cc. of whole blood twice weekly.

Her condition became progressively worse. The temperature was from 39 to 40 C. (102.2 to 104 F.) daily. Enlarging areas of denuded skin developed that oozed serum and whole blood constantly. She was in extreme pain continuously and showed signs of extreme toxicity.

Seventeen days after her admission local treatment was discontinued, but the same schedule of supportive therapy and penicillin was continued. Pressure bandages were applied to the extremities and the trunk. These consisted of (1) petrolatum gauze, (2) a layer of sterile gauze flats, (3) a sterile cotton roll, (4) an 8 inch (20.3 cm.) sterile gauze roll and (5) elastic bandages. These were left in place for forty-eight hours. When they were removed there was decided improvement in all lesions with beginning of epithelial growth. A tub bath in a 1:4,000 solution of potassium permanganate and one application of 1 per cent methylrosaniline chloride in 10 per cent alcohol were used, and the pressure bandages were reapplied. This routine was followed for three weeks. At the end of the second week all except two areas were completely epithelized, the patient was much improved generally, and the temperature ranged from 37 to 38 C. (98.6 to 100.4 F.).

One month from the time of application of the pressure bandages the patient was up and in good general condition. She began to have small crops of bullae, however, on her arms and legs. A course of suramin sodium (sodium salt of symmetric bis [m-aminobenzoyl-m-amino-p-methylbenzoyl-l-naphthylamino-4,6,8-trisulfonic acid] carbamide) was given without relief.

The patient was discharged two months after admission, in good general condition. The skin showed some scaling and a few healing, denuded areas from recent bullae 0.5 cm. in diameter.

SUMMARY

Pressure bandages, in a case of pemphigus foliaceus, proved valuable in stimulating growth of epithelium and simplifying the nursing problem. It is suggested that this procedure may be found useful in other similar dermatologic problems.

Clinical Notes

REACTIONS TO PENICILLIN

MAJOR HAROLD R. VOGEL, MEDICAL CORPS, ARMY OF THE UNITED STATES

With the introduction of penicillin, emphasis was placed on the factor of freedom from complications produced by the antibiotic agent. After its use over a period, reports of reactions began to appear in the literature. Although the majority of the reactions have been mild to moderate, physicians interested in immunology have been awaiting more serious manifestations. To date it would seem that there has never been a biologic product discovered which could be introduced into the human body without producing some reactions. Fortunately, the administration of penicillin has been accompanied with few adverse side effects. It is, however, a potent biologic agent and must be used with discrimination under adequate supervision.

Two cases of severe complications of penicillin therapy are reported.

REPORT OF CASES

CASE 1.—An aircraft armourer was treated with penicillin because of a recalcitrant pustulosquamous dermatitis of the palms and soles, of one year's duration. Culture of the unbroken pustules revealed beta hemolytic streptococcus sensitive to penicillin. Accordingly, penicillin was started at 25,000 units every three hours. After the sixth dose an itchy sensation of the face and hands developed. The administration of penicillin was continued, and the patient was seen after the eighth dose, at which time he presented erythema of the face, swelling of the eyes and moderate erythema of the flush areas of the neck. This was twenty-one hours after the beginning of the treatment. Three hours later there were patches of small vesicles on the cheeks, eyelids and forehead. These vesicles were pinhead in size and were grouped on an erythematous infiltrated base. One hour later vesicles appeared on the dorsum of the hands and wrists, and groups of vesicles on erythematous infiltrated bases were seen in the cubital areas. Use of penicillin was stopped at the ninth dose, or twenty-four hours after it was started. The process became more intense for about two hours after the discontinuance of administration of penicillin and then started to subside. Three days later there were no vesicles to be seen, but all areas involved were exfoliating and the skin in these areas was dry and fissured. Continuation of the penicillin would, it is believed, have resulted in a complete exfoliative dermatitis. The patient had received no penicillin previously.

CASE 2.—An infantryman was seen, complaining of a pustular follicular eruption of the left side of the neck, of three months' duration. He had been hospitalized for a penetrating wound of the left temporal area, involving the orbit. He had been given two courses of penicillin for the concomitant infection. The penicillin administered parenterally had had no effect on the folliculitis. Culture of the eruption showed beta hemolytic staphylococcus resistant to 100 units of penicillin. The patient was given a cream containing 100,000 units of penicillin in 60 Gm. of a cetyl alcohol base. Twenty-four hours later he was seen complaining of an indefinite itching of the extremities and a mild urticaria. He was told to continue the use of the cream for another twenty-four hours. When seen at the end of that time, he was in a semicomatose condition and appeared acutely ill. There was a solid edema of the face and giant urticaria over the entire body.

Rales were heard at the bases of both lungs. The pulse rate was 150, and the heart sounds were of poor quality. Repeated cool sponges were given, and the patient gradually improved over the next forty-eight hours. The sycosis improved locally but recurred within a week. Reactions to intradermal tests made later with penicillin and penicillin in blood serum were negative.

In neither of these cases was there any abnormality of the blood picture. Readministration of penicillin to prove the cause of the reaction was deemed unsafe

CONCLUSION

Complications of penicillin therapy as manifested by mild to moderate urticaria and angioneurotic edema are fairly commonplace. Two cases of severe reactions to penicillin therapy are reported.

COMPOUND TINCTURE OF BENZOIN IN OINTMENTS

JOHN G. DOWNING, M.D., and M. J. STOKLOSA, B.S., BOSTON

The value of compound tincture of benzoin as a healing agent in the treatment of indolent ulcers, bedsores, cracked nipples and fissures of the lips, the fingers and the toes has long been recognized by physicians. Although useful in many conditions if the skin is intact, local application of the undiluted tincture to broken tissues produces considerable irritation because of the high alcoholic content of the pharmacopoeial tincture. Dilutions of compound tincture of benzoin with glycerin and water have been suggested in the literature for use when the undiluted tincture is contraindicated.

Because such dilutions are pharmaceutically incompatible, ointments containing compound tincture of benzoin have gained popularity in the treatment of many conditions which do not permit the application of the official tincture per se. However, the full possibilities of these preparations have not been realized, because only relatively small quantities of the tincture are ordinarily prescribed in them, owing to the inability of most ointment bases to absorb and retain appreciable amounts of liquids.

In an endeavor to determine to what extent the amount of the tincture could be increased without encountering any compounding difficulty, a series of ointments containing varying amounts of compound tincture of benzoin were prepared. Results of this investigational work indicate that by evaporation of the tincture to a thick liquid before incorporation into the ointment base relatively large amounts of tincture could be employed. The higher proportion of compound tincture of benzoin enhances the usefulness of ointments of this type.

The following formula, which was used in the preparation of the ointment for clinical investigation, indicates the extent to which the amount of the tincture may be increased by use of the procedure outlined in the following paragraph. It has been found to be of value in treatment of the dry, fissured eruption of the fingers of workers in industry who have continued to work while under treatment.

Compound tincture of benzoin	30.0 cc.
Zinc oxide ointment	30.0 Gm.

Evaporate the compound tincture of benzoin on a water bath to the consistency of a soft extract and incorporate, while still hot, with the zinc oxide ointment.

From the Department of Dermatology, Boston City Hospital, and the Massachusetts College of Pharmacy.

Abstracts from Current Literature

EDITED BY DR. HERBERT RATTNER

THE DANGER OF CONTINUED ARSENOTHERAPY IN CASES OF ERYTHEMA OF THE NINTH DAY. WILLIAM LEIFER, Am. J. M. Sc. **210**:458 (Oct.) 1945.

Leifer states that the current consensus is that sensitization to arsenic is the cause of Milian's "erythema of the ninth day." In order to emphasize the significance of this reaction, 14 cases are reported in which the prompt resumption of arsenical treatment was followed by severe parenchymatous injury. Fever, headache and weakness were the signs common to these patients, whose first reaction developed six to eleven days after the first dose of oxophenarsine hydrochloride; other symptoms or signs were frequent, but only 3 patients had the characteristic eruption. The author states that it is entirely possible that the eruption is not an essential part of the syndrome. It is the intent of his paper to indicate that the safest course is to consider any febrile episode (except the Herxheimer reaction), especially in the first three weeks of arsenotherapy, a probable manifestation of sensitivity to arsenic. Additional arsenical therapy was given to the 14 patients reported on, and all suffered serious parenchymatous damage, in the form of jaundice and agranulocytosis, with or without nephritis.

CANCER OF THE MOUTH: ITS PRESENT DAY TREATMENT. WALTER MAYNE, Am. J. M. Sc. **210**:548 (Oct.) 1945.

Dr. Mayne provides an extensive review of various publications relating to the treatment of oral cancer, and points out the high incidence of five year "cures," the percentage of cures ranking only below that for cancer of the skin and the breast in the hands of persons experienced with radiation and surgical therapy. With reference to carcinoma of the buccal mucosa Mayne discusses various therapeutic technics and the indications for their use. In the case of carcinoma of the tongue and the floor of the mouth he states that the therapeutic trend is toward irradiation rather than surgical removal. For treating carcinoma of the back of the tongue he favors the insertion of needles containing radium. For carcinoma of the tonsil and about the epiglottis it is suggested that needles of radium be injected through the skin to a submucosal level and that roentgen rays of 400 kilovolts or more be used conjointly. In cases in which the first treatment of radiation has not controlled the lesion or the greater part of the tongue is involved surgical intervention should be considered.

Dr. Mayne favors surgical therapy for mandibular cancer and for lesions of the hard palate but advises radon seeds or contact roentgen rays for cancer of the soft palate.

Although the primary lesion in cancer of the mouth has a good prognosis when cared for by a competent radiologist or surgeon trained in the surgical treatment of oral cancer, the patient's survival is greatly dependent on the treatment of the cervical lymph nodes. Dr. Mayne expresses the belief that the majority of persons experienced in treating oral cancer prefer to treat the lesion of the mouth first, if radiation is to be the form of treatment, and then to watch the site of the primary lesion for several weeks in order to evaluate the control of the lesion. If they feel that the tumor is not responding to irradiation, they then believe that block dissection of the neck and surgical removal of the primary lesion can be combined in one operative procedure. He states that the study of the statistics of those handling a large number of cases leads one to believe that the safest procedure in treating

lesions of the cheek, the tongue and the floor of the mouth is to perform a block dissection of the neck as early as possible, waiting only to see if the primary lesion is controlled.

LYNCH, St. Paul.

PENICILLIN TREATMENT OF NEUROSYPHILIS. A. S. ROSE, L. D. TREVETT, J. A. HINDLE, C. PROUT and H. C. SOLOMON, Am. J. Syph., Gonor. & Ven. Dis. **29**:487 (Sept.) 1945.

Seventy patients with symptomatic neurosyphilis were treated with penicillin, administered intramuscularly, 50,000 Oxford units per injection, for a total of sixty injections (3,000,000 units). The interval of time between injections was varied. The 70 patients were followed from four to twelve months after therapy. The majority of the patients were also given fever therapy in approximately one-half the amount generally accepted as sufficient.

Of these patients, 28 are better, 37 are the same, and 5 are worse. The greatest percentage of improvement occurred among the 49 patients with a diagnosis of dementia paralytica. In 5 of 6 patients with primary optic atrophy there may have been an arrest of visual loss.

From the data presented it is believed that penicillin is an active and effective therapeutic agent for late neurosyphilis, but a comparison with the serologic results of 30 patients treated by older methods indicates that there is no striking difference at this period of observation (four to twelve months).

THE PUBLIC HEALTH ASPECT OF MALARIA THERAPY OF NEUROSYPHILIS. WALTER L. BRUETSCH, Am. J. Syph., Gonor. & Ven. Dis. **29**:494 (Sept.) 1945.

A critical review of the instances in which malaria has been reported as having its origin from therapeutic malaria leaves the impression that definite proof of this assertion is lacking in almost all cases. Unfavorable ecologic requirements explain why such accidental transmission of malaria practically never occurs. The danger, then, of disseminating malaria to the community in this way is negligible.

THE SEROLOGIC DIFFERENTIATION OF SYPHILITIC AND FALSE POSITIVE SERA. VIRGIL SCOTT, CHARLES R. REIN, IRA L. SCHAMBERG, J. E. MOORE and HARRY EAGLE, Am. J. Syph., Gonor. & Ven. Dis. **29**:505 (Sept.) 1945.

In general, serums giving positive reactions known or presumed to be biologically false have a low quantitative titer; but this may be true also of serums from persons with syphilis, treated or untreated, especially the former. By and large, the results of the Kahn "verification" test, the Rein special technic and the spirochetal complement fixation tests merely reflect the reagin titer of the serum and do not serve to differentiate syphilitic serums from serums giving false positive reactions.

It was not possible in this study to differentiate between syphilitic serums and "false positive serums" by the examination of a single specimen of serum with presently available serologic methods.

THE PROGNOSIS OF SYPHILIS. I. L. SCHAMBERG, Am. J. Syph., Gonor. & Ven. Dis. **29**:529 (Sept.) 1945.

The older studies on the prognosis of syphilis were found to be untrustworthy because of the factors of selecting and attributing to syphilis diseases now known not to be caused by syphilis. In addition, the absence or the inadequacy of treatment makes invalid a comparison of patients treated in the past with patients receiving the benefits of modern treatment. There is no evidence that syphilitic infection by itself or antisyphilitic treatment predisposes to tuberculosis, pneumonia, nephritis or other nonsyphilitic diseases.

On the basis of existing evidence, increased mortality among patients with syphilis is caused in part by deaths due directly to syphilis and in part to the higher

death rate in segments of the population which have a high prevalence of syphilis. Adequate antisyphilitic treatment will in the majority of cases prevent the development of the late manifestations of syphilis.

On the basis of simple and well accepted clinical and laboratory procedures, the life insurance companies may insure at standard rates the majority of persons with syphilis applying for insurance, with no risk of increased losses due to deaths.

Employers may safely hire persons having syphilis, and may prevent deaths due to syphilis and thus obviate increased compensation costs, through similar clinical evaluation of their employees.

REUTER, Milwaukee.

RECURRENT MENINGOENCEPHALITIS DUE TO THE VIRUS OF LYMPHOGRANULOMA VENEREUM. DAVID W. SCOTT JR., Arch. Int. Med. **76**:174 (Sept.) 1945.

Scott states that there have been 6 previously reported cases of meningoencephalitis presumably due to the virus of lymphogranuloma venereum. He describes such a case with evidence incriminating this virus as the probable cause, though he was unable to identify the virus. Treatment with the sulfonamide drugs was found to be effective, but to prevent recurrence it must be continued for a considerable period after the patient becomes asymptomatic.

The results of the examination of the spinal fluid were particularly of interest because of the increased content of protein, a first zone type of colloidal gold curve and, on one occasion, a 2 plus Kline reaction (though other reactions were negative).

CYSTIC AND COMPACT PULMONARY SCLEROSIS IN PROGRESSIVE SCLERODERMA. SOPHIA GETZOWA, Arch. Path. **40**:99 (Aug.) 1945.

Although sclerotic changes in the lungs have previously been described in patients with scleroderma, the present report is thought to be the first to describe lysis of the alveolar walls and progressive sclerosis, leading to cystically enlarged bronchiolar proliferations, for which the name "cystic bronchiolar hyperplasia" is suggested. In the 2 cases reported the cysts were seen in the subpleural zones but not in the apexes and the hilar regions.

MIXED TUMORS OF THE SKIN: REPORT OF CASES, WITH A CONSIDERATION OF THE HISTOGENESIS OF MIXED TUMORS OF ORGANS DERIVED FROM THE ECTODERM. ROBERT P. MOREHEAD, Arch. Path. **40**:107 (Aug.) 1945.

Mixed tumors are composed of two or more types of tissue and, though found in many situations, their occurrence on the skin is rare. Morehead describes 4 cutaneous mixed tumors located on the skin of the breast, the nose, the sternum and the ear. He suggests that mixed tumors of the skin, the salivary glands and the breast are similar morphologically and, further, that a given tumor may contain tissues representing all of the possibilities of ectodermal differentiation.

LYNCH, St. Paul.

EFFECTS OF VARYING DEGREES OF HYPOPHYSECTOMY IN THE DOG. ALLEN D. KELLER, WILLIAM E. LAWRENCE and CLAUDIA B. BLAIR, Arch. Path. **40**:289 (Nov.-Dec.) 1945.

Keller, Lawrence and Blair describe various effects of different degrees of hypophysectomy as seen in dogs. After two or three months, partial changes in coat are often readily evident, but frequently they are difficult to evaluate with certainty. When the texture of the coat is fully changed, the coarse, adult type of hair is replaced by luxuriant soft hair which is definitely infantile in type. Their experiments led to the conclusion that maximal change in coat was associated with removal of the pars anterior.

THE EFFECTS OF THE SYNTHETIC AND NATURAL HORMONE OF THE ADRENAL CORTEX ON MELANIN DEPOSITION IN ADRENALECTOMIZED BLACK RATS FED DIETS ADEQUATE AND DEFICIENT IN THE FILTRATE FACTORS OF VITAMIN B. ELAINE P. RALLI and IRVING GRAEF, Endocrinology **37**:252 (Oct.) 1945.

The same authors previously reported experiments regarding the influence which the adrenal glands exert on deposition of melanin in the skin of rats maintained on diets deficient in the filtrate factors of vitamin B or on diets supplemented with a rice bran extract. After adrenalectomy the effects of the deficient diet were reversed, and there was stimulation of hair growth and deposition of melanin. The present report confirms the earlier studies and shows that this stimulating effect of adrenalectomy can be significantly depressed by the daily administration of the synthetic counterpart of the adrenal cortical hormone, desoxycorticosterone acetate.

LYNCH, St. Paul.

PENICILLIN OINTMENT IN THE TREATMENT OF IMPETIGO NEONATORUM. EDWIN L. KENDIG JR. and RUSSELL H. FISKE, J. A. M. A. **129**:1094 (Dec. 15) 1945.

In this study of 14 cases the patients were treated with penicillin ointment, with satisfactory results. For the first part of the study the ointment was made with 250 units of penicillin to each gram of base, but this was later increased to 333 units to each gram. The ointment was applied at least twice daily. After a maximum of three days all the lesions appeared to be dry and healed. In 3 instances, however, there was a recurrence of the eruption.

PENICILLIN TREATMENT OF THE SYPHILITIC PREGNANT WOMAN. NORMAN R. INGRAHAM JR., JOHN H. STOKES, HERMAN BEERMAN, JOHN W. LENTZ and VIRGENE S. WAMMOCK, J. A. M. A. **130**:683 (March 16) 1946.

A syphilitic infant was born to 1 of 37 syphilitic pregnant women who were treated with penicillin and whose pregnancy reached term. The serologic tests of pregnant syphilitic women who are treated with penicillin may be expected to remain positive, even though the treatment is apparently effective, for as long as six months to one year after the treatment is completed. A total dose of 2,400,000 Oxford units of sodium penicillin, given over a period of eight to nine days, is recommended. To reduce the possibility of threatened abortion from therapeutic shock, 10,000 units is administered in each three hour injection intramuscularly for eight injections and 20,000 units in each three hour injection for the next eight injections, followed by fifty-four three hour injections of 40,000 units each.

PENICILLIN TREATMENT OF THE SYPHILITIC INFANT. NORMAN R. INGRAHAM JR., JOHN H. STOKES, HERMAN BEERMAN, JOHN W. LENTZ, PAUL GYÖRGY and ELIZABETH K. ROSE, J. A. M. A. **130**:694 (March 16) 1946.

Twenty-six infants with early congenital syphilis were treated with penicillin. The dosage employed was 11,000 to 74,000 Oxford units per pound of body weight. These totals were given over periods of from seven to fifteen days. The larger total doses with the longer periods of treatment have given better results. In general, the doses of penicillin used for infantile congenital syphilis have been too low. In this series, 71 per cent of the infants have remained clinically normal, and their serums are giving negative reactions six months after treatment.

HENSCHEL, Denver.

A CONSIDERATION OF PSYCHOSOMATIC FACTORS IN THE AETIOLOGY OF SOME SKIN DISEASES. G. A. HODGSON, Brit. J. Dermat. **57**:125 (July-Aug.) 1945.

In a consideration of psychosomatic factors of some cutaneous diseases, the author states the belief that type of personality and psychologic reactions to environment are essential elements of this disease complex and play their part in concert

with other factors both in producing the disease and in influencing its eventual course. According to whether the personality is stable or unstable, the influence of these psychologic factors in the disease complex will be less or more important. It will be, however, in the unstable person that their effect may become so profound in certain circumstances that the skin may be employed as an "organ of expression" to provide a physical outlet for mental conflicts and repressions in exactly the same manner as many other organs of the body are. In providing this physical outlet the skin can react only by changes in a disease of the skin already present or by the production of a new disease, the characteristics of which must be determined mainly by the constitution of the persons. It will, for example, assume seborrheic characteristics in a seborrheic person or eczematous patterns in a subject with epidermal hypersensitivity. Dr. Hodgson emphasizes the three following points: (1) Cutaneous psychosomatic disease occurs in persons of unstable personality; (2) the appearance of the eruption varies according to the basic type of skin of the person affected, and (3), as a corollary of 2, eruptions of the well recognized and common type (e. g., eczema, seborrhea, psoriasis) may sometimes appear as the psychosomatic results of anxiety in unstable persons and should be considered not as purely cutaneous disorders but as symptoms of the underlying anxiety.

LINEAR COMEDO NAEVUS AND ICHTHYOSIS. F. PIERS, Brit. J. Dermat. **57**:138 (July-Aug.) 1945.

The author describes ichthyosis and keratosis pilaris of the upper part of the thorax and a linear nevus which followed the middle line of the abdomen and a Voigt line on the thigh. The nevus appeared depigmented and consisted of a streak of dilated follicles filled with a comedo-like mass. Histologically, the dominant features were the presence of nevus cells in the upper portion of the cutis, hyperkeratosis of the horny layer, which extended into the dilated and atrophic follicles, and absence of sebaceous glands and mature hairs. The rare condition is related to what has been described as "naevus acneiformis." The coincidence of linear nevus and ichthyosis is considered to be due to a (possibly common) factor which in early intrauterine life affected the spinal cord and the epidermis.

ACNE AND SLEEP. E. LIPMAN COHEN, Brit. J. Dermat. **57**:147 (July-Aug.) 1945.

The author reports on the length of sleep in 500 cases of acne. He found that there was no correlation between the length of sleep and the incidence of acne in these cases, in which the average length of sleep was eight hours. There was no correlation between the depth of sleep and the incidence of acne.

DERMATITIS HERPETIFORMIS: FAILURE TO RESPOND TO PENICILLIN. R. G. PARK, Brit. J. Dermat. **57**:151 (July-Aug.) 1945.

The author reports a case in which dermatitis herpetiformis occurring in a soldier aged 23 failed to respond to a total dose of 480,000 units of penicillin. The disease was kept under control, however, by daily administration of 2 Gm. of sulfapyridine.

DERMATITIS DUE TO A CASE-HARDENING COMPOUND. G. P. B. WHITWELL, Brit. J. Dermat. **57**:169 (Sept.-Oct.) 1945.

A dermatitis occurring in workers handling a case-hardening compound is reported by the author. The case-hardening of steel consists essentially in bringing carbon into contact with the metal surface in such a state that the steel is made richer in carbon content. The dermatitis is caused by the sodium carbonate in the carbon pellets. It is eczematoid and affects mainly the backs of the hands and the flexor surfaces of the forearms; sometimes it involves the face. The rash often evolves rapidly, especially if the man remains at work after the erythema has started. The few extra days of exposure entail many weeks of added incapacity.

When severe the rash spreads to the unexposed parts. The skin with a severe eruption takes months to recover, and relapses occur from time to time, even when no carbon packing is done. In nearly all cases the dermatitis develops after the patients have been several months at work. It is not considered that trauma of the skin plays a great part in the causation. Although the dermatitis is eczematoid, a striking feature of an early stage is that the rash can be seen to originate from the follicles; this is especially noticeable on the flexor surfaces of the forearms. The management of this form of dermatitis begins when the employee is assigned to this work. He should be warned to report any rash immediately. To prevent the rash it is arranged so that no men do carbon packing while they are still perspiring after work at the furnace. The only therapeutic measure of use after the carbon packer's dermatitis has become established is an immediate change of occupation. The usual treatment for eczema is given.

SOLITARY NEUROFIBROMA OF SCALP. E. LIPMAN COHEN, Brit. J. Dermat. **57**:172 (Sept.-Oct.) 1945.

Cohen reports an unusual case of solitary neurofibroma of the scalp. The patient was a man aged 34. The tumor was 4 by 4½ inches (10 by 11 cm.) and was of firm consistency. On the tumor were a number of nodules of various sizes, some of them giving the appearance of a fold. A biopsy section showed the typical structure of a neurofibroma.

BLUEFARB, Chicago.

VEGETATING EPIDERMAL OIDIOMYCOSIS. G. MIESCHER, Dermatologica **86**:222 (Oct.-Nov.) 1942.

A 50 year old man showed involvement of the entire face. The eruption on the upper lip, the chin and both cheeks looked like granulomatous trichophytosis. The skin was tumor-like, swollen dark red and covered with serum and crusts. The upper parts of the face showed diffuse oozing dermatitis.

Histologically, the epidermis and the follicles were enormously widened. All layers of the skin as far down as the sweat glands showed infiltration, mostly of lymphocytes, plasma cells and leukocytes. Bacteria and fungi were not seen; there were, however, yeast cells in abundance in the supraepidermal crust. With roentgen irradiation and applications of boric acid the skin healed without any scars, a result which would not have been expected in intracutaneous granulomatous oidiomycosis.

SEBORRHEIC ECZEMA IN SEGMENTAL DISTRIBUTION. G. MIESCHER, Dermatologica **86**:229 (Oct.-Nov.) 1942.

The patient is a 53 year old woman. Several months ago she suffered from an erythematous-squamous eczema of the left foot and leg. All of a sudden propagation over the left part of the body took place. The skin of the first to the tenth dorsal, the fourth to the fifth lumbar and the first to the second sacral segment showed small parallel stripes which turned upward and formed snail-like windings. They were red and were covered with small scaly or crusted nodules. The area on the left leg was still red, infiltrated and partly oozing. Examinations of the nervous system, the blood counts and allergic studies did not reveal pathologic conditions.

The histologic examination showed a widened epidermis with long papillae and spongiosis of the malpighian layer with infiltration of round cells and leukocytes. Parakeratotic inclusions were seen in the stratum corneum. In the papillary and subpapillary layers inflammatory infiltration was present. The segmental cutaneous disease healed under treatment with Arning's tincture, tar and sulfur. The area on the leg improved on treatment with roentgen rays and arsenic.

Dr. Lutz suggests the name of "dermatitis linearis" for systematized dermatoses, which show characteristics of psoriasis, eczema, seborrheic eczema, neurodermatitis and lichen planus. Arsenic is always helpful.

HELEN O. CURTH, New York.

Society Transactions

BROOKLYN DERMATOLOGICAL SOCIETY

David M. Davidson, M.D., *President*

Seymour H. Silvers, M.D., *Secretary*

Feb. 26, 1945

Solid Edema of the Face. Presented by DR. ABRAHAM WALZER.

B. F., a white woman aged 47, was first seen at the dermatologic clinic of the Jewish Hospital about a month ago. She gave a history of having had an attack of nephritis about forty years ago (at the age of 8 years) and a severe toxemia of pregnancy, with a blood pressure of about 300, sixteen years ago.

Her cutaneous disease was of about six months' duration. She had recently been hospitalized for about three weeks for this dermatitis and was discharged about a month ago with no improvement. While she was in the hospital, complete investigations showed some evidence of renal damage. Her blood pressure was 154 systolic and 110 diastolic; the urea nitrogen of the blood was 28 and 23 mg. per hundred cubic centimeters, and frequent examinations of the urine showed occasional casts and a few white blood cells. Blood counts were within normal limits, and the hemoglobin was about 80 per cent. The patient showed occasional rises in temperature, reaching 100 F. The Wassermann reaction of the blood was negative. The nose and the throat and roentgenograms of the lungs and the heart showed no abnormalities.

At present, the patient has a violaceous red, swollen, elevated, not sharply outlined dermatitis involving the nose and the cheeks. The involved areas feel hot, indurated and somewhat tender. The right upper eyelid is swollen and edematous but feels soft. The tongue and the inner surface of each cheek show mild leukoplakia, and both corners of the mouth are cracked. (The patient has complete upper and lower dental plates.)

DISCUSSION

DR. DAVID M. DAVIDSON: I saw this patient in the clinic when she came the first time. She then presented only swelling of the right upper eyelid, with none of the nose and cheeks. The second time she had the identical picture seen here tonight—the lupus-erythematosus-like distribution. This is probably a case of recurrent erysipelas, and one should look for a focus of infection in the nose.

DR. SEYMOUR H. SILVERS: It has been my understanding and experience that sulfonamide drugs are helpful in such cases. Sulfathiazole should be used for a long time after the patient has begun to improve, in spite of a normal temperature and a feeling of general well-being. Large doses should be used to begin with, until the temperature goes down; later 2 Gm., then 1.5 Gm., daily is sufficient.

DR. ABRAHAM WALZER: I presented this case as one of solid edema of the face. What I meant to say was recurrent lymphangitis. It still has a solid feeling at this stage, though the acuteness is absent.

Erythema Annulare Centrifugum. Presented by DR. ABRAHAM WALZER.

B. G., a white woman aged 42, was first seen at the dermatologic clinic of the Beth Moses Hospital about one month ago. She gave a history of having undergone appendectomy twenty-four years ago and tonsillectomy sixteen years ago. She also gave a history of taking emmenagogue pills for a number of days five or six weeks before the rash appeared. Since then, she says, she has taken no medication whatsoever.

The present rash began about six months ago, with a "ring" on the left side of the upper part of the chest. Since then many such lesions have appeared and have never completely regressed.

The eruption is especially pronounced over the abdomen, the thighs and the upper part of the chest. The primary lesions are urticarial-like spots, erythematous and slightly raised, which become rapidly transformed into rings with broken borders and pigmented centers. These rings are of various sizes and may join, forming annular or gyrate lesions of various sizes. They gradually regress, leaving bluish or violaceous patches, but new lesions constantly form. There is mild pruritus.

A general physical examination, blood counts and a urinalysis showed nothing abnormal.

DISCUSSION

DR. C. THOMAS CHIARAMONTE: The lesions present are slightly raised and have violaceous borders. I offer, as a diagnosis, scleroderma of Gougerot.

DR. MORRIS M. ESTRIN: I am in favor of a drug eruption—phenolphthalein in this case.

DR. SEYMOUR H. SILVERS: Assuming that a drug eruption has been ruled out, I should be in favor of a diagnosis of morphea. This is substantiated by the color and hardness of the lesions; they do not disappear, and they always leave a shiny patch.

DR. JOEL SCHWEIG: I am not entirely satisfied with Dr. Walzer's diagnosis. There are many symptoms and features that do not fit into the diagnosis. There are lesions with a glossy smooth surface and a number of wide follicular openings; that is more suggestive of lichen sclerosus et atrophicus.

DR. DAVID M. DAVIDSON: At first glance this eruption certainly looks like erythema multiforme, but the lesions on the left side of the chest and the right side of the trunk have practically all the features of morphea; they even show the shiny and firm center characteristic of this disease. I am inclined to consider this a case of morphea, with many confluent lesions, giving an erythema-multiforme-like appearance.

Granuloma Inguinale. Presented by DR. DAVID M. DAVIDSON and DR. NATHAN PENSKY.

G. R., a Negro youth aged 19, is presented from the social hygiene clinic of Fort Greene Health Center of the Department of Health. On admission, he presented multiple granulomatous lesions of two years' duration on the frenum and the prepuce. Scrapings were positive for Leishmania bodies. The Wassermann reaction of the blood was negative. The patient received thirty-five injections of 1 per cent antimony and potassium tartrate in isotonic solution of sodium chloride. The lesions present today are similar in size and appearance. There has been no involution, and the granulomatous masses are still present.

Granuloma Inguinale. Presented by DR. DAVID M. DAVIDSON and DR. NATHAN PENSKY.

H. W., a Negro aged 28, was admitted, March 14, 1944, to the Fort Greene Social Hygiene Clinic of the Department of Health. He presented a large round granulomatous lesion with a healed center on the shaft of the penis. Another granulomatous lesion was present around the prepuce; the borders were crusted. He received sixty-five injections of 1 per cent antimony and potassium in isotonic solution of sodium chloride and fuadin. In spite of this amount of treatment, the clinical appearance today is practically the same as on admission. The advancing borders of the lesions are still active, and the lesions have not retrogressed. The Wassermann reaction of the blood was negative. Scrapings from the lesions showed many Leishmania bodies. The duration of the lesions is four years.

DISCUSSION OF THE TWO PRECEDING CASES

DR. NATHAN PENSKY: These 2 cases are presented because a great many such cases have been seen since the migration of many Negro people from the South. A considerable number of lesions, especially those associated with lymphedema, did not respond to treatment. It is now suggested that penicillin and antimony preparations be used in the treatment of this disease, in the hope that the penicillin may attack the secondary streptococcic infections and the antimony may work on the primary source. Furthermore, one is led to believe that in a certain number of cases the lesions are developing not by direct continuity but by spread of Leishmania from the lymphatics.

DR. JACOB SKEER: For a man with so few lesions as are seen in the second case I could not clinically make a diagnosis of granuloma inguinale. One should consider, too, the fact that the lesions have not spread.

Kaposi's Sarcoma. Presented by DR. C. THOMAS CHIARAMONTE.

J. L., a man aged 69, was recently seen at the dermatologic clinic of the Kings County Hospital. He stated that about twelve years ago a bluish discoloration appeared on his right instep. During the year 1937 he received thirty-one roentgen ray treatments from the department of physical therapy, with no appreciable improvement.

At present there is edema of both the legs and the ankles. The ankles are indurated with mottled brownish pigmentation.

There are brownish red and purplish nodular lesions on the legs, the knees and the thighs. In several areas the lesions are confluent and form irregular patches. Similar lesions are present on the dorsa of the hands and the wrists. The palms are swollen, and deep brown pigmented lesions can be seen on the ulnar sides.

DISCUSSION

DR. JOEL SCHWEIG: I agree with the diagnosis. Does Dr. Chiaramonte consider the lesion on the lower lip as belonging to the Kaposi syndrome, or does he believe, as I do, that one is dealing in this case with a vascular nevus?

DR. ABRAHAM WALZER: On being questioned, the patient stated that he noticed the lesion on the lower lip at the same time as he did the lesions on his legs.

Prickle Cell Epithelioma of the Lip. Presented by DR. NATHAN PENSKY.

M. D., a white man aged 61, was first seen as a private patient on Oct. 14, 1944. He stated that eight months previously he noticed a pimple on his lower lip, which he thought was a "fever sore." He was instructed to apply zinc oxide ointment to the lesion. The lesion began to grow, and he presented himself to another physician, who after observation, took a biopsy specimen from the lesion and sent the tissue to a general pathologist, who reported the diagnosis hyperkeratosis. Nothing further was done until the lesion grew large.

On examination the patient presented a large hard infiltrated tumor involving three quarters of the lower lip. The center was ulcerating (at the site of biopsy). The clinical impression was that of a prickle cell epithelioma. A careful inspection revealed no evidence that the regional lymph nodes were involved. The slide showed typical prickle cell epithelioma.

The patient was given 700 roentgens through 1 mm. of aluminum over a period of five days. The immediate result of this treatment can be seen today. The tumor mass is completely gone, and in its place is a smooth, slightly depressed area of the lip, with no infiltration or inflammation. The patient feels and looks well. No adenopathy is present.

DISCUSSION

DR. NATHAN PENSKY: This case is presented for the following reasons: First, to determine whether dermatologists should treat prickle cell epithelioma of the lips; second, to discuss the diagnosis, and, third, to discuss the therapy. I believe

that if the glands are involved, a dermatologist should not treat the lesion. But if one can be reasonably sure that there is no glandular involvement, then the lesion should be treated intensively in a short time before the erythema appears and thus get the best results. I have treated a man 82 years of age, and he, and others as well, have managed to carry on their work. In cases in which there is no glandular involvement I usually give about 6,000 r; in the present case I gave a little more.

DR. C. THOMAS CHIARAMONTE: Periodically, a report is published on a series of cases which have been followed for five years, comparing the results of roentgen ray therapy and surgical intervention. The reports are usually all optimistic, but I have as a general rule preferred surgical intervention or surgical intervention plus roentgen ray therapy for lesions of the mucous membrane.

DR. NATHAN PENSKY: I did not present this patient tonight as cured. I believe that one is dealing with a lesion which, as a rule, can be treated by a dermatologist, and if the lesion is as small as this patient's is, one should be able to excise it completely, if there is no adenopathy present. Epithelioma of the lip heals well. Tumors of this type have been removed both by knife and by electrosurgery, though the latter is more painful and the wound takes longer to heal.

NEW YORK DERMATOLOGICAL SOCIETY

Hans J. Schwartz, M.D., *President*

George C. Andrews, M.D., *Secretary*

Feb. 27, 1945.

Ephelides, Lentigo. Presented by DR. GEORGE C. ANDREWS.

M. D., a 7 year old girl, had freckles at the age of 5 months. They first appeared on the right cheek and then spread to the nose and the upper lip. The right cheek now presents dark brown unilateral freckle-like spots that are probably lentigines (nevi) in addition to rather typical light brown freckles (ephelides) on the left cheek. The mother has bilateral freckles. A case of pronounced asymmetric lentigo has been reported by Adams. That this may be a variant of xeroderma pigmentosum is possible. This condition has not changed perceptibly in the last five years.

DISCUSSION

DR. FRED WISE: The right side presents a unilateral pigmented nevus; the other side, ordinary freckles.

DR. GEORGE M. MACKEE: I do not know whether the pale macules on the left side of the face are part of the nevus or ordinary freckles. On the right side of the face we are certainly dealing with nevus pigmentosus.

DR. HOWARD FOX: I think that every one agrees that the right side of the face shows pigmented nevi. The question is what the nature of the light freckles is. The fact that the lesions have remained through the winter makes me think that all the freckles are of the permanent type (lentigines).

DR. GEORGE C. ANDREWS: Lentigo is a kind of freckle-like nevus, and distinct from ephelides. It seems doubtless that this is a pigmented nevus. The question is whether the light spots on the left side of the face are freckles and nevi. The mother has the same light freckles, which I think we all should agree are ephelides. As far as treatment is concerned, I agree that the best course would be to leave them alone.

Lichen Nitidus. Presented by DR. PAUL E. BECHET.

S. T., a Negro woman aged 34, stated that she first noticed cutaneous lesions on her arms two months previously, and that in the course of time new ones

appeared on her trunk and neck. There were no subjective symptoms. On inspection, shiny sharply defined small papules, circular in outline and occurring in groups but without coalescence or inflammatory appearance could be discerned on the aforementioned locations. Between Dec. 7, 1945 and Feb. 27, 1945, the patient had taken three tablets daily of arsenic trioxide in a dosage of 1/30 grain (2 mg.) each and nine intravenous injections of sodium cacodylate once weekly in doses of 7½ grains (0.488 Gm.) each, with the result that when presented the lesions had greatly improved.

DISCUSSION

DR. PAUL E. BECHET: The excellent results attained by means of the orthodox treatment used in lichen planus in this particular case corroborates the present day belief that this dermatosis is a variant of lichen planus and not, as was formerly believed, a tuberculous or tuberculoid manifestation.

Necrobiosis Lipoidica (Nondiabetic). Presented by DR. PAUL E. BECHET.

M. M., a married woman aged 59, stated that the cutaneous lesions on the anterior surfaces of both legs from the knee to the ankle had been present for four years. On these sites, she presented oval to round yellowish glazed plaques, somewhat depressed and atrophic in the center and with many dilated arterioles. Superficial ulcers of varied size were also present. The blood sugar was 95 mg. and the blood cholesterol was 243 mg. A complete blood count was normal. She had been treated steadily for two years by another dermatologist, with long-continued doses of roentgen rays and much medication administered intravenously and intramuscularly without any appreciable improvement.

DISCUSSION

DR. HOWARD FOX: Has any one ever seen any improvement by any form of therapy in any of these cases? The best way to get rid of this would be to excise it and graft skin.

DR. PAUL E. BECHET: The patient showed no improvement after two years of treatment by another dermatologist. These negative therapeutic results were duplicated after a month or so of treatment by me; in fact, she did much better with the application of plain boric acid ointment than with more active treatment. This corroborates the completely negative results attained with any type of treatment in this particular dermatosis.

Alopecia and Severe Paresthesia of Scalp, Associated with Amenorrhea. Presented by DR. HOWARD FOX.

C. B., aged 28, a housewife who also does homework for a magazine, has been married for eight years. She had one miscarriage seven years ago, but has not been pregnant since then. Five years ago, her father died of cancer, and within a week her mother committed suicide. About that time she began to lose her hair and to have difficulties in menstruation. There has been complete amenorrhea for the past nine months. Various subjective symptoms of the scalp appeared first about seven months ago.

Examination shows tenderness of the entire scalp, which is dry and rather thin and covered by hair that is somewhat sparse. The patient complains of pain and various abnormal sensations, such as a feeling like raw flesh, burning, pricking of needles or knives, a swelling like a balloon, etc. Since their onset, these symptoms have been getting steadily worse. Gynecologic examinations by Dr. Maurice Bornstein, her family physician, and two well known gynecologists in 1943, showed a small, infantile uterus, a boyish structure of the pelvis, small breasts and a cyst of the ovary the size of a baseball. Examinations by a neurologist and an internist showed no other changes of importance. Examination by me showed an apparently normal personality but a complete absence of pharyngeal and corneal reflexes.

Hormonal treatment was given in 1943 for two months by Dr. Bornstein, on the basis that an endocrine disturbance was due to pituitary deficiency. Anterior pituitary solution and posterior pituitary solution were given subcutaneously, three times a week, beginning with 0.5 cc. and increasing to 1 cc. She was also given a thyroid preparation by mouth empirically for the infantile uterus. At the end of two months this treatment was stopped because of severe abdominal cramps. It had, however, caused swelling of the breasts and decrease in the size of the ovarian cyst, but menstruation had not recurred. Treatment by pituitary extracts was again given by her physician in December 1944, and continued for six weeks. It was followed for several weeks by intramuscular injections of estrone. No treatment has thus far had any effect on the subjective symptoms of the scalp, alopecia or amenorrhea.

DISCUSSION

DR. FRED WEIDMAN (by invitation): Do you think that the pain is deep seated, as though it might be in the muscles? In that case, dermatomyositis might be considered. It would be remarkable for arsenical neuritis to be confined to the scalp.

DR. RAY H. RULISON: I think this is a case of hysteria.

DR. MAURICE J. COSTELLO: It is hard to determine whether the pain is superficial or deep seated. It may be worth while administering ergotamine tartrate by hypodermic injection.

DR. GEORGE C. ANDREWS: I agree with the diagnosis as presented, but feel that a roentgenogram of the unerupted wisdom tooth on the right side of her jaw may throw some light on the condition, which may perhaps be due to reflex nervous irritation from an impacted tooth.

DR. HOWARD FOX: In answer to Dr. Weidman, this girl has a tender scalp and complains of various forms of paresthesia and pain. Apparently she has a normal mentality. It seems to me that this disease must bear some relationship to the amenorrhea of five years' standing.

Sporotrichosis. Presented by DR. JOHN C. GRAHAM.

The patients are G. P., aged 53 years, and her daughter, B. A. P., aged 12. Last fall the daughter, together with other children in the neighborhood, played in a pile of salt meadow hay which was to be used to mulch tulip bulbs. Three or four weeks later, around the end of November, she first noticed a papule on the left arm about 1½ inches (3.81 cm.) above the elbow, on the outer surface. Subsequently three other papules developed above the original along the lines of lymphatic drainage. These are now open ulcerated papules. The first papule one week ago showed some evidence of papillomatous proliferation, but this has subsided under treatment with potassium iodine. Seven other children who played in the salt meadow hay are said to have similar infections.

At Christmas time the mother first noticed a small papule near the outer side of the lower lid of the left eye, and this has since spread toward the nose. The original papule is now about the size of a pea, and the other papules which had not broken down have somewhat subsided under treatment with potassium iodine.

A culture was made by Dr. George M. Lewis, who reported sporotrichosis.

DISCUSSION

DR. HOWARD FOX: I suggest that Dr. Graham try to get in touch with the other 4 persons thought to have the disease in Patchogue, because the entire number of cases known to have occurred in New York city is small and also so that more information be obtained about the relationship of this case to hay.

DR. GEORGE M. LEWIS: It is unusual to see sporotrichosis affecting a mother and a daughter. Investigation of vegetation by culturing is usually unsuccessful. Emmons, Benham and a few others have shown that vegetation many harbor the

fungus, but there is much contamination when one tries to culture straw, hay, etc. The daughter illustrates two ways in which the organism travels, by the lymphatic vessels and by exogenous spreading. It is most likely that the mother acquired the infection directly from the daughter.

DR. FRED D. WEIDMAN (by invitation): The child is said to have had a lesion around the eye, too, just as the mother exhibits tonight. The eye is not an uncommon site for sporotrichosis. The ophthalmologists recognize this in the differential diagnosis from dacryocystitis, which can also ulcerate on the skin.

DR. JOHN C. GRAHAM: I have made tentative arrangements to see the mother at her home in Patchogue next Saturday, and she will try to have at her home the other children in the neighborhood who are said to have the same infection.

NOTE.—Since presenting the foregoing cases I visited the vicinity where these cases originated, and I saw 4 children, 3 boys and 1 girl, who had played in the salt meadow hay, and each of them had typical sporotrichosis, and 3 other children whom I did not see are said to have the same disease.

A Case for Diagnosis (Lupus Erythematosus with Superimposed Senear-Usher Syndrome). Presented by DR. MAURICE J. COSTELLO.

K. V., a woman aged 52 (private patient), has had an eruption on the forehead for two and one-half years, on the neck for eight months, and in the mouth for several months. The patient states that the lesions appear as small thick-walled pruritic vesicles which increase in size until ruptured. At present, the eruption involves the forehead, the submental region and the oral cavity. It consists of crusted ruptured vesicles on atrophic skin. The lesions in the oral cavity consist of superficial erosions involving the buccal mucosae, the soft palate, and the gingivae. Treatment before she consulted me consisted of six injections of sulfarsphenamine and one roentgen ray treatment. Sulfathiazole ointment had been applied locally. The patient had a thyroidectomy twelve years ago which was preceded by high voltage roentgen therapy. She had several operations which consisted in the removal of an ovarian cyst, an appendectomy, a hysterectomy and a cholecystectomy. A biopsy on February 16 showed these conditions: "Throughout the cutis is an intense cellular reaction which extends also about the adnexal tissue. There is some interstitial edema in the upper part of the cutis. There are small areas of basophilic degeneration in the subepidermic region. The overlying epidermis is necrotic and is covered with a crust. In the subepidermic region is a large bulla which separates the cutis from the epidermis. Both the rete pegs and the papillary bodies remain intact. The elastic tissue is clumped beneath the epidermis."

DISCUSSION

DR. FRED WISE: The concept of a combined and coexisting eruption of lupus erythematosus and Senear-Usher dermatosis has never seemed to me to be based on sound clinical and pathologic findings. I have always maintained that the occasional bat wing eruption resembling lupus erythematosus on the nose and the cheeks is merely a manifestation of pemphigus of nonbullous character, frequently associated with the milder manifestations of pemphigus on the trunk and in the mouth. In such instances, sections from the cheeks show no microscopic evidence of lupus erythematosus. I tried to make this clear in an article entitled "Lupus Erythematosus Bullosus or Pemphigoides; Report of Two Cases with Discussion of the Senear-Usher Syndrome" (*M. J. & Rec.* **134**:227, 1931). Unfortunately, my comments in this article have been misquoted.

DR. GEORGE M. MACKEE: Assuming that the histologic architecture suggests lupus erythematosus, the diagnosis must be bullous lupus erythematosus, and not the Senear-Usher syndrome, which is a form of pemphigus. I favor lupus erythematosus.

DR. PAUL E. BECHET: In a clinical experience extending over a long period I have never observed a definite example of the so-called bullous lupus erythematosus. All of the patients observed from time to time with bullous lesions on the face, located on the favorite sites of lupus erythematosus, when seen long enough, presented an extension of the disease to the rest of the body with lesions indistinguishable from a slowly progressive type of pemphigus. I have therefore always regarded the Senear-Usher syndrome as a variant of the so-called benign type of pemphigus, and not lupus erythematosus. In fact, I am not convinced that lupus erythematosus of the bullous type is a clinical entity. In my opinion Dr. Costello's patient has pemphigus of a mild type which sooner or later will become aggravated, eventually causing death.

DR. FRED D. WEIDMAN (by invitation): It seemed to me that for a disease of three years' duration there was strikingly little atrophy and that the lesions were rather lurid for lupus erythematosus. If it were not for the lesions in the mouth I would think more of tuberculid or bacterid, but of course the lesions in the mouth are hard to get around on that basis.

DR. MAURICE J. COSTELLO: The physician who referred this case to me said that he thought that the patient had the bullous type of erythema multiforme. I was of the impression that she had lupus erythematosus of the bullous type. I believe that she has the Senear-Usher syndrome and that she will eventually have the lesions of pemphigus elsewhere. I should like to ask what the eventual outcome is in these cases.

DR. FRED WISE: Generally pemphigus vulgaris develops in these patients, and they die of that disease.

Parapsoriasis en Plaques, with Linear and Serpiginous Lesions. Presented by DR. PAUL E. BECHET.

H. S., a man aged 42, stated that he had had an eruption on his legs for four or five years. On inspection, rounded, sharply circumscribed, somewhat scaly, yellowish to red patches of varied size were abundantly distributed over the thighs and the lower half of the legs. On the lower aspect of the thighs some patches were distinctly linear in conformation, a few measuring from 2 to 3 inches (5 to 7.6 cm.) in length by 1 inch (2.5 cm.) in width. On the calves other plaques assumed a semicircinate geographically outlined appearance. All the plaques were completely flat, with no itching and no change for four or five years.

DISCUSSION

DR. HOWARD FOX: I agree with the diagnosis. The lesions are linear and sharply bordered.

DR. GEORGE M. MACKEE: I agree with the diagnosis of parapsoriasis, but I do not recall ever having seen linear lesions in the plaque type of parapsoriasis. I have encountered such lesions in mycosis fungoides. The linear lesion is the interesting feature of the case.

DR. PAUL E. BECHET: The reason for the presentation of the case was the linear lesions in the inner thighs and the few serpiginous patches on the calves. There was no itching, no infiltration whatsoever and no change in the appearance of the lesions for four years. The great majority of the plaques presented the classical picture of parapsoriasis. All the evidence therefore eliminated in toto an incipient mycosis fungoides.

Chloracne. Presented by DR. PAUL E. BECHET.

G. R., a man aged 36, was first seen on Feb. 7, 1945. He stated that he had never had any previous eruption on his skin other than six months ago, when he noticed an acneform eruption on his face, arms and legs. He worked in a plant which manufactured synthetic rubber, and had been constantly spattered

by an oil containing a highly viscous, chlorinated hydrocarbon, which saturated the legs of his trousers and also his face and arms. He had never coated electric cables, and had never come in contact with halowax (chloronaphthalene). On inspection there were many comedos about the temples and malar regions of the face. On the arms and the thighs there were innumerable indolent dark red indurated papules with large comedos. With cessation of exposure the eruption cleared up entirely.

DISCUSSION

DR. HOWARD FOX: I do not think that this is a picture of chloracne due to wax; I could not see the cysts so well described by Schwartz, etc. These cysts are extremely resistant, and sometimes remain for years. I think that this man is in contact with some kind of oil and has a pustular folliculitis due to the oil.

DR. MAURICE J. COSTELLO: I agree with Dr. Fox. This patient has oil folliculitis. The application of diluted Quinolor Compound Ointment (10 per cent benzoyl peroxide and 0.5 per cent Quinolor, a mixture of three chlorine derivatives of 8-hydroxyquinoline, in equal parts of petrolatum and wool fat) twice a day should prove curative and preventive.

DR. JOHN C. GRAHAM: I think that this is a typical case of chloracne. The typical feature about this was the large number of blackheads on the head, around the eyes. He had them on other parts of his body. All the patients whom I have seen had these typical, large quantities of comedos around the eyes.

DR. PAUL E. BECHET: The symptomatology and history are characteristic of chloracne. According to Peck (*J. A. M. A.* **125**:190 [May 20] 1944) only the highly viscous or the amorphous solid chlorinated hydrocarbons caused acneform lesions, and the patient under discussion was constantly in contact with such a product at his work. The eruption practically disappeared within a month after the contacts ceased.

Raynaud's Disease. Presented by DR. MAURICE J. COSTELLO.

J. A., a man aged 38, a painter and oiler, was born in Guiana. He was referred for the removal of what was thought to be a wart on the tip of the right index finger. He stated that it had been present for more than a year and that it was removed by electric needle while he was in the United States Navy. A similar lesion on the palmar surface of this finger overlying the first joint was removed in the same manner. The patient states that he had an operation for an infection of the bone of the third finger of the right hand about six months ago. He states that he has difficulty in sleeping at night because of numbness of the upper extremities. He also has had typical Raynaud's phenomena of the fingers, consisting of blanching, cyanosis and redness. He has several spots of leukoplakia on a scrotal tongue, and has several spider nevi on his face. The patient had filariasis in his childhood while living in Dutch Guiana. This was accompanied by recurrent swelling of the legs and thighs. He was discharged from the United States Navy on Oct. 16, 1944, because of phlebitis. It was necessary for the patient to change his occupation because of his inability to handle his paint brush without pain.

DISCUSSION

DR. FRANK C. COMBES: I accept this diagnosis, but not without some reservations. His hands look normal now, but I understand that he has had the usual paroxysms of local syncope common to this disease. It is many years since I have seen Raynaud's disease, and I do not recall having seen any case in a man.

DR. HOWARD FOX: I agree with the diagnosis, and also that it is somewhat unusual to see this disease in a man.

DR. FRED D. WEIDMAN (by invitation): Dr. Philip Custer fed rye bread to white rats, which eventually had gangrene of the ears and tails; they dropped

off. On my wards, a Polish Jew with arteriosclerosis and gangrene of a great toe stated that he never ate white bread; rye only. It might be interesting to find out whether this man eats rye bread; not that it means ergotism necessarily, but to accumulate more data on this point.

DR. GEORGE C. ANDREWS: I was interested in what Dr. Weidman said, and also in this man's history in regard to coffee. We know that coffee causes spasm of the vessels in some people sensitive to caffeine. This man drinks about twenty cups of the beverage a day. I think that the use of coffee and nicotine by people who are sensitive to them may cause such vascular spasms, and may be a factor in the Raynaud's disease in this patient. I remember a patient about 60 years old at the hospital with vascular occlusion of the leg, who was an inveterate cigaret smoker. Oscillometric readings, taken twenty minutes before and after he smoked a cigaret, showed that the vascular capacity was just one half as much after as before he smoked the cigaret. Recently, I had a patient who came to me about another disease, whose blood pressure was 190 systolic. He smoked about five cigars a day. His blood pressure in the morning, before he had smoked, was 165, and twenty minutes later, after he had smoked one cigar, it was 185. After he had smoked a second cigar it was 190, and it remained at that level. He smoked only two cigars that day. The following day when he awoke his blood pressure was 155. After he had smoked one cigar it jumped up 20 points. I finally persuaded him to cut out smoking, and his blood pressure stayed at 155; it has remained at that point since he stopped smoking. Similar oscillometric studies should be made with this patient.

A Case for Diagnosis (Mycosis Fungoides?). Presented by DR. JOHN C. GRAHAM.

M. G., aged 55, was presented before the Atlantic Dermatological Conference on March 9, 1940 (ARCH. DERMAT. & SYPH. **42**:699 [Oct.] 1940). Since that time he has continued to have similar erythematous plaques which now involve the whole body. There never have been any tumor formations. Another biopsy was performed, and all the pathologic features of mycosis fungoides were present with the exception of Pautrier abscesses. There has been no itching, and in several of the erythematous plaques there is deep ulceration which is not painful. Some of the ulcers are the size of a half dollar. There are certain areas where lichen-planus-like papules occur, particularly on the wrists.

DISCUSSION

DR. FRED WISE: I would offer two tentative diagnoses: one, generalized, extracellular cholesterosis, and the other lupus erythematosus.

DR. GEORGE M. LEWIS: Lichen planus is suggested by the penile lesion and the verrucous lesion on the wrist.

DR. FRED D. WEIDMAN (by invitation): I was trying to think of some condition like extracellular cholesterosis, and Dr. Wise prompted me. The delicately verrucous plaque on his wrist seems to fit in with hypertrophic lichen planus. I suggest that particular attention be paid to the presence of cholesterol in such a verrucous lesion. If it is present in this case, and if, at the same time, other lesions show the picture of lichen planus, it will be an additional piece of evidence in the pathogenesis of the lipoid dermatoses. Thus, I feel sure that many of them are fundamentally some well established disease, such as lichen planus, in which the fatty deposits have occurred secondarily, just as in some other xanthomas there is the secondary deposition of fatty substances (Netherton, E. W.: Chronic Discoid Lupus Erythematosus with Superimposed Xanthomatous Infiltration: Report of a Case, ARCT. DERMAT. & SYPH. **51**:100 [Feb.] 1945).

DR. FRANK C. COMBES: Lichen planus impressed me as the most likely diagnosis for this patient, but I must admit that I have little to substantiate it except a few typical papules. There have been some bullous lesions which

rarely occur in this disease, although with such an inflammatory lesion one would expect more residual pigmentation.

DR. HOWARD FOX: I think that this is the most interesting case presented today, and one of the most extraordinary cases which I have even seen. I do not think that this is lichen planus, because there are no lesions in the mouth, and there is no itching; there are certainly no scratch marks that I can see. It would be unusual indeed not to have any pruritus in lichen planus in which some of the lesions are hypertrophic. I think that most of the lesions looked more like lupus erythematosus than lichen planus. The latter is more apt to be an extensive disease than is the former, and I have never seen anything approaching the extent of this eruption in lupus erythematosus. I do not know whether or not this may be a cholesterosis.

DR. RAY H. RULISON: I think this is lichen planus; it is the most extensive, aggravated case I have ever seen.

DR. MAURICE J. COSTELLO: Both diseases (lupus erythematosus and cholesterosis) have occurred in the same person and have been so reported. It is possible that this may be another similar case. The lesions on the hands are suggestive of lichen planus; those on the face resemble lupus erythematosus.

DR. JOHN C. GRAHAM: In performing a biopsy, from which sites should a specimen be taken?

DR. FRED D. WEIDMAN (by invitation): A specimen for biopsy should be taken from one of the verrucous surfaces in the plaque on the wrist, and one might be taken from the face, to see whether the features of lupus erythematosus were present.

DR. GEORGE M. MACKEE: How do those who have made the diagnosis of lichen planus account for the large necrotic lesions, the erythroderma and the exfoliation? It may be a case of cholesterosis, but I favor some form of so-called lymphangioma, possibly mycosis fungoides.

Myxedema. Presented by DR. GERALD MACHACEK.

M. C., a Negro woman aged 45, presents a diffuse swelling of both lower extremities, with nodular eminences and verrucous thickening of the skin, of ten years' duration. The edema is nonpitting.

The patient was first seen Aug. 14, 1930, at which time she had cardiac enlargement, goiter, a pulse rate of 88 and a blood pressure of 148 systolic and 96 diastolic. It was then discovered that her basal metabolic rate was plus 32 per cent. A thyroidectomy was performed Sept. 23, 1930, and on May 6, 1931, her basal metabolic rate was plus 9 per cent. On April 8, 1932, the Wassermann reaction of the blood was 4 plus. After a short course of treatment the Wassermann reaction became negative. On July 6, 1934, uterine fibroids were removed. These had extended to the umbilicus and had been found after swelling of both lower extremities was noted in January 1934, when a diagnosis of elephantiasis was made. The dermatologists, however, made the diagnosis of myxedema, which was substantiated by pathologic examination. The basal metabolic rate at this time was plus 28 per cent. Hypertension has since developed in the patient, and she has a blood pressure of 250 systolic and 140 diastolic. Her basal metabolic rate is normal; she is suffering from hypertensive cardiovascular disease, and has had a subarachnoid hemorrhage.

Pictures taken three years apart—March 15, 1934 and March 8, 1937—showed the remarkable change in the patient's lower extremities.

DISCUSSION

DR. FRED WISE: This case is interesting because of the multiplicity of symptoms, the exophthalmos, the verrucous elephantiasis and the lesions on the upper and lower portions of the leg. She has a combination of lesions pointing to the diagnosis.

Tissue Necrosis from Injection of Bismuth Subsalicylate in Vegetable Oil.
Presented by DR. GEORGE M. LEWIS.

Mrs. J. H., aged 25, was first seen in January for continuation of treatment of lichen planus. She had received four injections of bismuth subsalicylate from another dermatologist. She was given two further injections on January 15 and 22. On the latter date there was some sign of necrosis in one of the sites of previous injections. Since then at all the sites of injection there has been destruction of tissue with formation of abscesses and finally crater-like ulcers. All the lesions appear to be healing.

The patient states that some years ago she was given an injection in which the vehicle was peanut oil. This was followed by an intense inflammatory reaction.

DISCUSSION

DR. FRED D. WEIDMAN (by invitation): Recalling the great numbers of such injections that are made, I believe that this is fundamentally due to some special factor in fat metabolism. In experimental work on monkeys with paraffin oil tumors, we found that sometimes the control olive oil injections resulted in the formation of granulomas too; according to the book, olive oil should not induce granuloma.

I think that this case should read as a lipophagic granuloma, with the granuloma due to some peculiarity of fat metabolism in the patient whereby the oil taken up by the cell is transformed into an abnormal kind of fat which is now to all intents and purposes a foreign body.

DR. GERALD F. MACHACEK: Some of these reactions may be due to the necrotic fat itself. They occur not only after injection of oil suspension and solutions, but after injection of aqueous solutions as well. One patient, a stout woman suffering from lichen planus, whom I treated with injections of a preparation of bismuth, had indurations which were localized or absorbed. After some of the later injections, I removed more liquid than was injected. This liquid was evidently confined in a cavity, the walls of which were fibrotic. In other cases I have noted bone formation in injected areas. I think necrotic fat is sufficiently irritant to be the cause of lipogranulomas.

DR. JOHN C. GRAHAM: In answer to a previous speaker, we had a patient at the Brooklyn Hospital who received a preparation of bismuth, and he had a necrosis of the buttock extending into his perineum and half his scrotum, and it was simply dry gangrene, from one injection. There was a question as to whether it could have entered a vessel, but I know of no vessel that supplies all that area.

DR. GEORGE C. ANDREWS: Investigations have shown that eruptions from estrone and the estrogen family are caused not by an allergy to the drug, but to the oil of sesame in which the drug is incorporated. They are scarlatiniform erythemas. When there is tissue necrosis from injections of oily substances there is usually a history of several injections before the necrosis begins. I have thought that it was something like the Arthus phenomenon. It may possibly be due to the oil in the injection given to this patient rather than to the heavy metal. However, in regard to Dr. Weidman's and Dr. Machacek's explanation of the fat necrosis, I might say that only recently I had a patient who received injections of liver extract from an internist, and she suddenly had a huge inflammatory abscess in one buttock. Roentgen treatment cleared it up, but when it began to drain the other day spontaneously, there were some oil droplets in the drainage. How this can be explained from injections of liver extract, unless it is injury to the fat, is hard to say.

DR. GERALD F. MACHACEK: A recent article discussed pronounced cutaneous injections which occurred following injection of various substances. A technic was recommended which I have used for many years and found helpful in preventing reactions. The solution is taken up with a needle which is discarded and replaced

by a new sterile one before the injection is given. Evidently many of the necroses are caused by some of the substance setting up an inflammatory reaction within the skin itself.

DR. GEORGE M. LEWIS: This unusual occurrence serves to remind us that even bismuth therapy should be administered with some degree of care.

Tuberculous Adenitis with Sarcoid-Like Lesions in the Skin. Presented by DR. MAURICE J. COSTELLO.

C. M., a woman aged 26, Puerto Rican, was seen at the Lenox Hill Hospital Out-Patient Department with a generalized eruption, enlarged lymph nodes and hoarseness since August 1943, at which time the attack began with what she thought was grip. She has had recurrent cough since that time. When first seen she had visible swelling of the cervical, axillary, inguinal, and femoral lymph nodes, and a generalized eruption consisting of nonsuppurative dull red, infiltrated plaques, from the size of a quarter to that of a half dollar, especially numerous on the extremities, which have since undergone involution. The spleen was enlarged. The Mantoux test elicited a negative reaction with 0.01 mg. on June 30, 1944, and a reaction of 3 plus with 0.1 mg. on July 7. The serum protein was 6.99 mg., the serum albumin was 4.54 mg. and the serum globulin was 2.45 mg. Sputum analyses on a number of occasions have revealed no abnormal condition. A roentgenogram of the chest showed slight infiltration of both apexes and enlargement of the mediastinal lymph nodes. The reaction to the heterophile antigen test was negative. Roentgenograms of the bones of the hands were normal. A laryngoscopic examination on Jan. 12, 1944, showed swelling of the interarytenoid space with a whitish hypertrophy or swelling of the mucosa of the surface of the posterior wall without ulceration. At that time the patient had a lesion the size of a coffee bean on the posterior surface of the uvula and perfortion of the nasal septum. The eruption began to improve five months ago, which the patient attributes to eating large quantities of figs. She has two children, aged 6 and 5 years, and she has now been pregnant three months. Microscopic examination of lymph nodes of the neck shows "several lymph nodes, the normal architecture of which is completely destroyed. They are almost completely replaced by granulation tissue which is largely avascular and made up of epithelioid cells. It forms numerous well circumscribed tubercles which are surrounded by focal accumulations of round cells and contain multinucleated giant cells, some of which are characteristic of Langhan's type. Old areas of caseation necrosis where the tissue has undergone marked hyalinization are also encountered."

The report of the biopsy of the skin lesion on July 3, 1944 is as follows: "Microscopic examination reveals a section of skin, the surface of which is covered with stratified squamous epithelium of more or less even thickness. The underlying largely sclerosed corium contains several fair-sized perivascular focal accumulations of round cells."

The blood was examined three times. The first examination showed 4,500,000 erythrocytes, 88 per cent hemoglobin and 4,700 leukocytes, with 55 per cent polymorphonuclear leukocytes, 10 per cent immature cells, 40 per cent small lymphocytes, no eosinophils, 1 per cent basophils and no monocytes. The second examination showed 3,500,000 erythrocytes, 73 per cent hemoglobin and 4,000 leukocytes, with 71 per cent polymorphonuclear leukocytes, 12 per cent immature cells, 27 per cent small lymphocytes, 2 per cent eosinophils, no basophils and 4 per cent monocytes. The third examination showed 4,100,000 erythrocytes, 85 per cent hemoglobin and 6,100 leukocytes, with 77 per cent polymorphonuclear leukocytes, 14 per cent immature cells, 21 per cent small lymphocytes, 1 per cent eosinophils, no basophils and 1 per cent monocytes.

DISCUSSION

DR. ANTHONY CIPOLLARO: I think that this is a case of generalized sarcoidosis. I think that the changes of the uvula, the palate, etc., are due to the same process.

DR. MAURICE J. COSTELLO: The histologic structure of the affected cervical lymph node was definitely tuberculous, and the lesions on the skin were suggestive of sarcoid. I think that the patient had two diseases, tuberculosis and sarcoid, or a transition from one to the other. I agree that the lesions on the skin were those of sarcoid, but the lesion in the gland is tuberculous. Now that this patient is pregnant, and since her reaction to the tuberculin test is becoming positive, she should be watched carefully for the development of systemic tuberculosis.

Hans J. Schwartz, M.D., *President*

George C. Andrews, M.D., *Secretary*

March 27, 1945

Erythroderma—Ichthyosiforme Congenitum. Presented by DR. A. BENSON CANNON.

A. S., a baby aged 3½ months, was referred to me three days ago because of a universal scaly red eruption of three months' duration. The baby was born at full term, with normal delivery. After he had been brought home from the hospital, the mother noticed that his skin was red and scaly like that of a fish. Her pediatrician attributed the trouble to an allergic state caused by the milk. Various food formulas and various local remedies, such as medicated oils, vitamin creams, fish oil, Mazon ointment (an ointment containing mercury salicylate, benzoic acid, salicylic acid and tars) and soap have been used, without diminution of the redness and the scaling. Merthiolate ointment was also used. The baby has been bathed in oil only during the last ten days. The eruption does not bother him, and he has continued to gain weight despite the various diets.

Examination shows general redness and exfoliation in layers much like that of an ichthyotic skin, although the scales are larger and come off in patches the size of a 5 or a 10 cent piece in places. The flexures are more involved. The skin of the face is red, shiny, dry and tense, with ectropion of the lower lids. The scalp is scaly.

As to treatment, the baby was given vitamin A in large doses, anointed with paste of zinc oxide containing salicylic acid (2 per cent) and supplied with a fatty soap for washing.

DISCUSSION

DR. FRED WISE: One of the distinguishing features of this dermatosis is the presence of longitudinal scaly bands on the anterior surface of the chest and the abdomen. It is lacking in this patient, for whom the diagnosis of ichthyosis vulgaris seems more applicable.

DR. J. LOWRY MILLER (by invitation): I think that the eruption was distinctly ichthyosiform when the baby was first seen. The skin was red, with distinct ichthyosiform features, and I should be in favor of the diagnosis presented.

DR. A. BENSON CANNON: I agree with the previous discussers in this respect, that if I saw the patient for the first time tonight I would not think of the diagnosis as presented. On the other hand, the mother stated that the skin was always red, tense and shiny and that it was dry and scaly like that of a fish, and my impression was that this disease is ichthyosis. I warned the mother about caring for the eyes.

Circumscribed Lymphangioma of the Toes. Presented by DR. FRED WISE.

P. K., a boy aged 3 years, was registered at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on March 27, 1945.

Examination shows a tumor mass affecting the second, third and fourth toes of the right foot. The lesion is situated on the plantar surfaces and the lateral

aspects of the toes; the size is that of a walnut. The surface is cauliflower-like in appearance and is studded with small translucent vesicles, which appear to be tense and filled with a gelatinous substance. The patient is presented for a discussion of therapy.

DISCUSSION

DR. A. BENSON CANNON: I think that a plastic operation should be considered.

DR. GEORGE M. MACKEE: I agree that a plastic operation is the treatment of choice. A satisfactory result might also be obtained with electrocoagulation.

Elephantiasis Nostras of External Ears. Presented by DR. FRED WISE.

Mrs. N. K., a woman aged 40, complained of a periodic swelling of all the tissues of the external ear, including the vestibule and the auditory canal; the swelling first appeared seventeen years previously. Her general health had always been good. Roentgen ray treatments had been administered by dermatologists on several occasions but with only temporary relief. She complained of itching and buzzing during the attacks.

An examination showed a pronounced edema of the entire external ear, resulting in occlusion of the auditory canal and causing partial deafness. During the height of the attacks, the ears became inflamed and swollen and at times eczematous and fissured. There was no clinical evidence of bacterial or fungous infection, and the patient denied self-inflicted traumatization. The attacks occurred at irregular intervals, and the patient was unable to say what precipitated them.

DISCUSSION

DR. GEORGE C. ANDREWS: Has the patient stopped using nail polish?

DR. FRED WISE: The patient had this disease for twelve years before she used nail polish. Would anybody start penicillin treatment on the chance that this might be a streptococcic infection?

DR. JOHN C. GRAHAM: I have seen a similar case in which the disease has been controlled with roentgen ray therapy plus sulfadiazine by mouth.

DR. MAURICE J. COSTELLO: Sometimes these patients persist in the bad habit of scratching in or about the ears with hair pins and bobby pins, and it would be wise to investigate along those lines. Otherwise, I agree with the suggestions made by Dr. Graham.

DR. GEORGE M. MACKEE: The fact that the eruption is symmetric indicates a traumatic factor rather than a focus of infection.

Hypertrichosis. Atrophy of the Pituitary Gland. Presented by DR. A. BENSON CANNON.

Miss J. F., aged 19, a Bermudian, was referred because of hypertrichosis of the upper lip and the chin that had been present since 1913. The patient's past and family histories revealed nothing relevant except that her father was extremely hairy. The onset of superfluous hair began with severe headaches, almost daily, beginning at the back of the neck and extending over the scalp to the eyebrows, with increasing lassitude, drowsiness and increase in weight. She was referred to the hospital, where roentgenologic studies showed atrophy of the pituitary gland and repeated metabolism tests demonstrated that the basal metabolic rate was low. She was given chorionic gonadotropin and has continued taking it by mouth and by injection for the last two or three years. Menstruation began at 13, the periods occurring every two or three months, gradually becoming less frequent until she menstruated only two or three times a year. In the past year she has noticed that her voice has become coarse and masculine in quality. The hair on the upper lip has been less, although coarse hair has appeared on the chin this last year. Rest, keeping her weight down ond taking pituitary extract give her relief from headaches and make her feel more energetic and strong.

Examination shows a well developed and nourished young woman with a fairly heavy, coarse, black moustache about ½ to ¾ inches (1 to 2 cm.) long. The eyes are a bit prominent. The blood pressure was 100 systolic and 76 diastolic.

DISCUSSION

DR. MAURICE J. COSTELLO: It is interesting that occasionally a patient will lose hair during the time that the pituitary tumor is enlarging and when the tumor is surgically removed the hair will return. There must be some association between the pituitary gland and the growth of hair.

Lupus Erythematosus (Fixed Type) Treated Successfully with Germanin.
Presented by DR. MAURICE J. COSTELLO.

A. S., a woman aged 47, from Bellevue Hospital, presents an eruption of seven years' duration on the forehead, the nose, the cheeks, the chin, the ears and the V of the chest. It consists of discrete and coalescing irregular discoid lesions, of half-dime to quarter size, covered with an adherent scale. Many of the lesions show central atrophy and telangiectasis. The borders are hyperpigmented. There is a healed lesion on the vertex of the scalp, with partial alopecia. At the onset of the disease the patient had a typical subacute type of lupus erythematosus, with a temperature ranging from 101 to 102 F. A laryngoscopic examination revealed many punctate infiltrated lesions of lupus erythematosus on the laryngeal mucous membranes. In fifteen examinations of the blood the hemoglobin value ranged from 55 to 75 per cent and the erythrocyte count from 3,200,000 to 4,500,000; the leukocyte count was about 3,000 at all times, but it rose to 5,800 after treatment with suramin sodium. The percentage of polymorphonuclear leukocytes ranged from 34 to 63, that of lymphocytes from 35 to 63 and that of eosinophils from 1 to 8. The sedimentation rate of the blood cells ranged from 30 to 54 mm per hour. The Wassermann test of the blood was negative.

Roentgenograms of the chest showed a fibroid type of tuberculosis of questionable activity, and those of the sinuses revealed hypertrophic mucosa in both antrums.

Tonsillectomy was performed soon after the onset of the disease. In 1933, after two doses of gold sodium thiosulfate had been administered, 5 and 10 mg., respectively, there was an exacerbation of the eruption. The drug had to be discontinued. The patient was also treated with quinine sulfate, sulfanilamide, bismuth subsalicylate and liver extract without benefit. Finally, she was hospitalized and was given a total of 4.5 Gm. of suramin sodium intramuscularly between February 5 and March 11, 1940. This resistant eruption was spectacularly improved in that short space of time. Similar results were obtained in 2 other cases. Suramin sodium had to be discontinued in 1 of them because a dermatitis medicamentosa developed.

DISCUSSION

DR. A. BENSON CANNON: This is an excellent therapeutic result. I should rather like to ask Dr. Costello whether he has treated other patients by the same method and, if so, what the results have been.

DR. FRED WISE: Dr. Samuel Peck has used suramin sodium successfully for many patients with lupus erythematosus.

DR. GEORGE C. ANDREWS: Dr. Costello has previously presented other patients treated with suramin sodium in whom he observed good results. This drug is dangerous and should be used only for those patients who can be hospitalized and observed closely, because severe hepatic damage, as well as other ill effects, can result.

DR. MAURICE J. COSTELLLO: At the time this patient was treated, 4 other patients were admitted to the wards of Bellevue Hospital and all improved with Germanin, the German preparation of suramin sodium, but the use of the drug had to be discontinued because of the cutaneous reactions. This drug was

administered at the suggestion of Dr. Samuel Peck. I expected to present here tonight another patient with lupus erythematosus of similar extent and severity, treated with the American preparation of suramin sodium. She was not improved. In the latter patient there developed diminution of the acuity of vision that fortunately was not permanent. The 4 patients referred to previously were those who had been observed in the Bellevue Hospital outpatient department and who had the discoid type of lesions of lupus erythematosus.

DR. FRED WISE: The American preparation of suramin sodium is marketed under the name of Naphuride sodium. This product, in my hands, has not been as effective in the treatment of pemphigus as the German preparation of suramin sodium.

A Case for Diagnosis (Eruptions Associated with Rheumatic Fever?). Presented by DR. FRED WISE.

Mrs. S. M., a woman aged 35, wife of a physician, applied for the treatment of a widespread maculopapular eruption on the face, the trunk and the extremities on May 24, 1944. She was well nourished and obese but complained of arthralgia of many articulations, which first appeared in September of 1941. She was referred to Dr. David Likely, who treated her for rheumatic fever; the eruption vanished two weeks after her first visit, following topical treatments with mentholated lotion of calamine and starch baths. The patient was advised to avoid ingestion of all medicaments, including acetylsalicylic acid and cathartics, which she had been taking previously.

On March 27, 1945, she again applied for the treatment of an eczematoid papulovesicular dermatitis of the face, which was most pronounced on the forehead and the cheeks. Most of the lesions consisted of crushed and scratched papules the size of a pinhead. The patient said that she had not used drugs internally and that she had refrained from using all cosmetics, including lipstick and nail polish. Patch tests were deferred until the acute stage had subsided.

DISCUSSION

DR. GEORGE C. ANDREWS: I have seen an eruption like this one that was traced to sleeping on feather pillows.

DR. MAURICE J. COSTELLO: One sees eruptions of this type but of a milder degree in women, something in the nature of acne urticata; it is never seen in men.

Acute Guttate Psoriasis—Rosacea-Like Tuberculid of the Face. Presented by DR. A. BENSON CANNON.

Miss B. K., aged 42, a houseworker, consulted me yesterday because of a generalized eruption of thirteen days' duration. Her familial, past and present histories were nonrelevant. She had had an eruption on the cheeks, the nose, the forehead and the chin for eight to ten years, concerning which she consulted a physician two weeks previously. He diagnosed the disease as rosacea, treated the patient with roentgen rays and prescribed a salve. The following day the skin over the entire body, from the head to the feet, broke out with a red, papular, slightly itching, hivelike eruption that has remained and has become scaly. The itching is present only when the patient is overheated. She had never had an eruption before, with the exception of the lesions on the face that had been evident as red blotchy papular lesions that had never been pustular.

Examination reveals a healthy-looking, well nourished and well developed woman. Her face is a dark red over the entire front, and the cheeks are scaly, with raised plaques, while on the nose, the chin and the forehead are red macular areas studded with red papules from the size of a pinhead to that of a millet-seed. There is a generalized eruption, most evident on the extensor surfaces, consisting of bright red papules, from the size of a pinhead to that of a large pea, covered with micaceous scales. After the removal of the scales, bleeding points remain.

The flexor surfaces of the upper extremities and the abdomen are almost free of lesions. On the back and the outer aspect of the right arm are three linear raised lesions, 1 to 3 inches (2.5 to 7.5 cm.) long by ¼ inch (0.5 cm.) wide, and covered with silver-like scales. Half dollar-sized scaly grayish patches are found on the scalp, with normal skin between the affected areas. The scalp and the hair are dry and lusterless. The nails are normal. The general physical examination revealed normal conditions. There are no tonsils and no plate, merely a few lower front teeth. The heart, the abdomen, the liver and the spleen are normal. The pupils are equal and reacted well to light and accommodation. All the deep reflexes of the upper and the lower extremities are hyperactive but equal bilaterally.

DISCUSSION

DR. ANTHONY CIPOLLARO: It is difficult to make a diagnosis in this case. I am inclined to believe that the diagnosis of guttate psoriasis is correct, but I should like to see a histologic confirmation of this diagnosis. I also believe that the lesions on the face are part of the same picture. I would consider the disease acute guttate psoriasis.

DR. GEORGE C. ANDREWS: I suspect that the woman has rosacea of the papular type, because she says that the eruption flares up after she drinks coffee and tea; besides, she has psoriasis. However, it is possible that she has secondary syphilis. If a Wassermann test has not yet been made, it should be made now.

DR. FRED WISE: I cannot accept the diagnosis of psoriasis in this case. I am more inclined to favor parapsoriasis, but I think that a positive diagnosis cannot be made without a histologic examination.

DR. GEORGE M. MACKEE: In all probability the eruption is an acute guttate psoriasis. I do not think that there is any rosacea-like tuberculid.

DR. A. BENSON CANNON: I shall take some skin for biopsy. I saw this patient yesterday for the first time and could find no evidence to suggest the possibility of another lesion or any systemic infection. All the lesions were of pinhead to large pea size, red and dry. The tuberculid-like rosacea is a highly speculative diagnosis, based on the fact that the patient has had the disease for many years without any active lesion and with no digestive disturbance or oiliness of the skin. It may possibly be on a glandular basis.

A Case for Diagnosis (Pustular Psoriasis?). Presented by DR. GEORGE M. LEWIS.

M. G., a school girl aged 16, has had a recurrent eruption confined to the palms for the past fourteen years. The lesions appear every three months with regularity, persist for about a month and then spontaneously disappear. Her father also has had this disease all his life, but he seems to be less vulnerable as he gets older. There are erythematous, vesicular, crusted, localized lesions on the palms and the finger tips. A biopsy report by Dr. Wilbert Sachs revealed that the vessels in the middle and upper parts of the cutis are dilated, that their walls are thickened and that about them there is a pronounced focal cellular reaction. The epidermis was acanthotic. At one edge a crust was present. In another area was a large vesicle. The cellular infiltrate was composed of small round and wandering connective tissue cells. This picture suggested nummular eczema, but the disease could be pustular psoriasis.

DISCUSSION

DR. RAY H. RULISON: Dr. Traub asked me to mention the case of a physician who has typical pustular psoriasis whenever he gets an attack of tonsillitis; the eruption lasts a month or longer and then clears, and he has no further trouble until he has a new attack of tonsillitis. The girl presented tonight has had her tonsils and appendix removed and has had an eruption since the age of 3 years.

DR. ANTHONY CIPOLLARO: I see no evidence of pustular psoriasis in this case. The eruption is made up of vesicles which later become purulent. The fact that it recurs every three months, that there is definite periodicity, makes me believe that it is connected with a virus disease or else with some glandular disturbance. It is hard to name this eruption. I believe that the category into which it might best fit is that of eczema.

DR. GEORGE C. ANDREWS: There might be a virus disease in this case. In view of the fact that the father of the patient also has the disease, it may be some aberrant type of localized eruption of epidermolysis bullosa. It is certainly not at all characteristic of the diagnosis presented. It is difficult to explain how the father and his child have the same disease, unless it is nevoid.

DR. GEORGE M. MACKEE: Dr. Lewis said that the present attack is mild but that there have been worse exacerbations. I cannot make a diagnosis of pustular psoriasis based on the present eruption. Pustular psoriasis is characterized by remissions and exacerbations. During a remission there are no pustules or vesicles, but the skin is not normal. The long duration, the normal skin during remission and the grouping of elementary lesions suggest the possibility of localized dermatitis herpetiformis. It might be well to administer potassium iodide internally to provoke an exacerbation and also make a patch test with the same chemical.

DR. GEORGE M. LEWIS: I have not yet had an opportunity to see the father's eruption. The bilateral involvement would be against herpes simplex recurrens. If this disease is dermatitis herpetiformis, it is decidedly unusual as to both site and course. I have had the patient under observation for only a short time and have not really seen the eruption at its worst. The attacks occur only at fairly regular intervals. The biopsy specimen did not show familial benign chronic pemphigus (Haley and Haley disease).

Tuberculosis Orificialis (Sputum Negative for Tubercle Bacilli, Improved by Treatment). Presented by DR. MAURICE J. COSTELLO.

E. H., a married woman aged 38, from St. Joseph's Hospital, first noticed a sore on the floor of the mouth about three and a half years ago. She consulted a physician at the New York University College of Medicine, who performed a biopsy of the lesion, which showed a tuberculous structure. A roentgenogram of the chest revealed extensive pulmonary tuberculosis, which has since been controlled by pneumothorax on the left side.

The interesting feature about this case is that repeated examinations of sputum, as well as examinations of the gastric contents and the feces, revealed no tubercle bacilli. But tubercle bacilli have been readily obtained on several microscopic examinations of the exudate of the floor of the ulcer.

In addition to the foregoing sore, the patient has bilateral submaxillary tuberculous adenitis. She complains of some tenderness and pain on mastication.

This patient was presented at the November meeting of the Manhattan Dermatologic Society. She has improved since that time, the base of the lesion having been treated by electrocautery.

DISCUSSION

DR. GEORGE C. ANDREWS: How do you account for the fact that no bacilli could be found in the sputum?

DR. MAURICE J. COSTELLO: Unlike most patients in whom tuberculous infection of this type develops, this patient is well enough to be up and about. She helps around the hospital; her pulmonary tuberculosis appears to be fairly well controlled.

DR. GEORGE C. ANDREWS: It is dangerous to give such patients old tuberculin. One of my patients with tuberculosis of the tongue went to Saranac Lake and was treated with old tuberculin. His tongue became swollen to such a size that he could not eat. He died in excruciating pain.

DR. GERALD F. MACHACEK: Several years ago at the New York Academy of Medicine, Section of Dermatology and Syphilis, I presented a patient with tuberculosis of the mouth and ulcerated tuberculosis of the skin with multiple healed lesions of the leg, evidently from early childhood. She was a Negro woman in good physical condition; she was followed for several years and has remained healthy.

Granuloma Annulare. Presented by DR. FRED WISE.

Mrs. L. B., a woman aged 57, first noticed an eruption on the dorsa of both hands four years previously. It consisted of irregularly outlined and oval rings, from 2 to 4 cm. in diameter, with red borders and clear centers; there were no subjective symptoms. A clinical diagnosis of circinate lichen planus was made by a competent dermatologist, and injections of a bismuth compound combined with a short course of roentgen ray treatments were administered, but the eruption remained unchanged over a period of four years.

About two months ago, large crops of ringed lesions appeared rather suddenly on the dorsal surfaces of both forearms, from wrists to elbows. These averaged 2 cm. in diameter and were yellowish brown, with slightly elevated borders and clear centers. Palpation disclosed a moderate grade of infiltration. Subjective symptoms were absent. A microscopic section revealed the changes of granuloma annulare (Dr. Charles Sims). The lesions showed regression after two treatments with unfiltered roentgen rays, each 75 r, and the ingestion of small doses of solution of potassium arsenite.

A Case for Diagnosis (Pyoderma?). Presented by DR. GEORGE M. LEWIS.

L. D., aged 20, stated that he has had trouble with his toe nails for the past year and a half. The right great toe nail was removed by a chiropodist a year ago. Both great toes were hypertrophied, probably from birth. There was a pustular eruption affecting the periungual tissues and nail folds. Cultures have been negative for fungi. During the past month he has used penicillin ointment, and roentgen rays have been administered. There is some improvement.

DISCUSSION

DR. ANTHONY CIPOLLARO: The irritation involves the tissue about the nails and is perhaps due to overgrowth of the toe nails. There is a large amount of granulation tissue, which has been present for many years. I should be inclined to remove permanently all the affected toe nails. They do not serve any useful function, and by permanently removing them one would remove a source of trouble.

DR. FRED WISE: I agree with Dr. Cipollaro.

A Case for Diagnosis (Arsenical Hyperpigmentation? Scleroderma? Koilonychia?). Presented by DR. GEORGE M. LEWIS.

A. C., a man aged 35, was first seen on March 22, 1945, asking for advice regarding pigmentation of the face and the neck. His father and mother were first cousins, and an only brother was a cretin. Three sisters were normal. His health had previously been excellent with the exception of an operation for hypospadias three years before and an attack of jaundice in 1923. After this his local physician administered thirty to thirty-five injections of an arsenical preparation. At about this time he became aware that his face was pigmented, particularly around the eyes. This increase in pigment has remained to the present time, being more noticeable in the summer and also increasing at various times in the region of the eyes. At times there are areas of redness, particularly under the eyes. On examination, the skin of the face, the ears and the neck shows hyperpigmentation, the color being dark brown. There is some diffuse redness in the skin of the lower eyelids and the neck. There is also telangiectasis on the nose and elsewhere on the face. The ears and the cheeks near the ears show some

pitted scars. On palpating the skin of the face and the hands, one notices a definite binding down of the skin. The ears appear definitely atrophic. The finger pads are thickened. The right index finger nail shows spooning. Several other nails reveal separation along the distal margin. In his occupation of repairing adding machines, the patient handles grease, a solvent for grease, a cyanide and a benzine-like substance.

DISCUSSION

DR. MAURICE J. COSTELLO: I believe that the hyperpigmentation in this case is confined to the areas of the scleroderma, and I think that it is a component of the scleroderma. Oftentimes these patients have rectangular patches of telangiectasia.

DR. GEORGE M. LEWIS: It was interesting to me that this man had no idea that there was any sclerosing change in the skin. He complained only of the hyperpigmentation, and when I pointed out to him that there was difficulty in moving his skin he said that he had never realized it. There is no history of any tie-up of the sclerodermatous changes and the pigmentation. I realize that pigmentation sometimes occurs with scleroderma, but this seems to be so diffuse and so intense that I got the impression that there might be two different conditions. He works with abrasive substances.

Eruptive Syringocystadenoma and Neurofibroma. Presented by DR. GERALD F. MACHACEK.

Mrs. G. E. F., a Puerto Rican woman aged 47, has an eruption of twenty-nine years' duration which covers the thorax, the back and the upper part of the abdomen. A few lesions are seen also on the cheeks, extending up to the hair line. The lesions are reddish brown elevated flat papules, varying from 2 to 8 mm. in diameter. From a biopsy specimen previously taken it was said that the disease was lichen planus. There has never been a complaint of pruritus. In 1937 the Wassermann test of the blood was positive (4 plus). The test has since become negative, after antisyphilitic therapy.

The blood counts were: white blood cells, 5,800; neutrophils, 50 per cent; lymphocytes, 46 per cent. The hemoglobin value was 107 per cent.

The patient had attacks of colic due to gallstones on several occasions over a period of five to six years. Her serum cholesterol was 292 mg. and her blood sugar 183 mg. per hundred cubic centimeters. The patient originally sought treatment not for her cutaneous involvement but for possible glaucoma. Biopsy, made on March 14, 1945, disclosed syringocystadenoma and neurofibroma.

DISCUSSION

DR. GERALD F. MACHACEK: This case is interesting, because there is no evidence of other pathologic changes; these have been described and have appeared concomitantly.

A Case for Diagnosis (Pseudoleukemia?). Presented by DR. FRED WISE.

Y. L., a woman aged 55, registered at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on April 10, 1944, presenting lesions of five years' duration. The posterior cervical lymph nodes became enlarged in 1935. There is no history of allergy of the patient or of the family. Menopause occurred at the age of 49. She has mild but continuous itching during the day and severe itching at night, relieved by hot baths.

The lesions began as a large blue-red patch on the inner surface of the lower third of the left leg, which did not itch and ultimately "disappeared by itself." A year later similar lesions, painless and nontender, appeared on the upper third of the left leg and lasted for six months. Other patches developed soon afterward in various parts of the lower extremities, penny sized, puffed up and not itchy. These would flatten out like a question mark, a half-moon or some other design,

and would remain between three and six months, to be followed by new lesions. For the past three years, pea-sized to penny-sized lesions have appeared all over the body, generalized, symmetric, nonscaly and erythematous, most numerous on the inner and the upper surfaces of the thighs and on the flanks, the back and the buttocks. They are of pea to cherry size and are discoid in outline and fairly well defined, some being superficial and others raised a few millimeters and moderately infiltrated. The smaller lesions are rounded, with necrotic centers, and the larger lesions are raised at the periphery and show central clearing. There are a few serpiginous and half-moon-shaped patches. Many of the lesions on the legs are excoriated. On diascopic pressure they are fairly easily compressible, revealing yellowish and whitish stains. Pea-sized lymph nodes are palpable in the posterior cervical region, and cherry-sized lymph nodes are present in the axillas and the groins. There is scaling as well as maceration between the toes.

The urine was normal. The Wassermann test of the blood was negative. The hemogram showed a red blood cell count of 3,570,000 per cubic millimeter. The hemoglobin content was 12.4 Gm. per hundred cubic centimeters—74 per cent. The color index was 1.05. The leukocyte count was 10,550, with 5 per cent polymorphonuclear eosinophils. The rest of the count was normal. Patch tests with potassium iodide and potassium bromide in 30 per cent petrolatum elicited negative reactions. A roentgenogram of the chest, taken at the Mayo Clinic, showed normal conditions, and the stool on examination was within normal limits.

A histologic section, taken on April 12, 1944, showed chronic dermatitis. Another histologic section, taken on March 8, 1945, showed an "erythema multiforme type" of reaction. The description is as follows:

"The epidermis is somewhat irregular but otherwise presents no noteworthy changes. The vessels of the upper part of the corium are moderately dilated and surrounded by a mild cellular infiltrate composed for the most part of small round cells and some polymorphonuclear leukocytes and eosinophils. There is some parenchymatous edema of the collagen in the papillary and subpapillary zone."

DISCUSSION

DR. ANTHONY CIPOLLARO: I cannot make a diagnosis in this case. I cannot help but think that leukemia cutis should be ruled out. I am cognizant of the fact that two biopsies revealed an erythema multiforme type of reaction, yet in a case such as this the patient should be treated with unfiltered roentgen rays and if prompt response is obtained the diagnosis of lymphoblastoma should be considered.

DR. GEORGE M. LEWIS: Most cases of this type turn out to be instances of dermatitis medicamentosa, both in the appearance and in the histologic structure of the lesions. A careful search should be made for the etiologic agent. As dermatologists know, it is difficult sometimes to ferret this out. The drug may be something ingested and not taken as a medicine.

DR. ANTHONY CIPOLLARO: Regarding the therapeutic test, I mentioned that there are some cases that cannot be diagnosed clinically or histologically, but the therapeutic test might be of value in other cases. Treatment with roentgen rays might also help to classify the disease.

DR. FRED WISE: It is of interest to note that this patient was observed in the Mayo Clinic by Drs. O'Leary and Montgomery without any conclusion having been reached as to the diagnosis.

Papulonecrotic Tuberculid. Presented by DR. A. BENSON CANNON.

A. N., a Negro woman aged 28, stated that a Wassermann test of her blood made during her first pregnancy, at the age of 17, was positive. Her children are healthy and their serologic tests negative. Antisyphilitic treatment was begun in 1936. Since then she has had approximately fifty treatments to the arm and fifty to the hip, for the most part administered at Lincoln Hospital. The last Wassermann test of her blood was positive (2 plus), about two or three months ago. She has never had a lumbar puncture.

In January 1943 pulmonary tuberculosis was diagnosed and the patient was shown to have a large cavity in the right lung. In February, she entered Bellevue Hospital, where she remained three months, and was then transferred to Metropolitan Hospital, Welfare Island, where she remained four months, until September. For the past two years she has had pneumothorax. In November 1944 lesions developed on the elbows and the knees. Lesions have continued to appear and heal, with scarring, at these sites up to the present. In Lincoln Hospital she was treated with salves.

There are clearly demarcated round lesions, infiltrated and crusting, over the entire body, most evident on the elbows, the knees and the upper extremities, each about the size of a dime or smaller. There are also numerous pigmented scars of a similar size, with decided atrophy.

A test with old tuberculin in a dilution of 1:1,000,000 was done on March 26, 1945.

DISCUSSION

There was no discussion of this case.

Lichen Planus-Like Eruption from Quinacrine Hydrochloride. Presented by DR. A. BENSON CANNON.

M. R., a white Polish man aged 34, was in the Army ten months ago, in New Guinea. He first noticed a rash on his chest. At the time he was working as a cook and had not previously been ill. The rash at first proved extremely itchy and was composed of pinhead-sized pimples which when squeezed exuded white pus. He had no other symptoms. He was treated with three injections in the hip and boric acid ointment. After returning to the United States, he was treated in Rhoads General Hospital, Utica, N. Y., with twenty injections of liver in twenty days, given intramuscularly. He remained in the hospital for six months with no change in the rash. His general condition has improved. He has gained 50 pounds (22.5 Kg.) and feels better now than on his arrival in the United States, at which time he was too weak to walk and had no appetite. A week ago he was walking in the sun and suddenly felt dizzy and as though he were about to faint. His face became flushed, and his heart beat quickly. Rest for a few hours helped considerably. There have been no other such episodes.

While the patient was in the Pacific area he took quinacrine hydrochloride for six months. About one month after he started taking quinacrine hydrochloride, the rash appeared. He has had stools streaked with blood occasionally for the last few months and diarrhea for the last few weeks.

The rash is diffuse, covering face, neck, chest, back, legs and arms. For the most part it is an increase in pigmentation. Large areas of the body are darker than normal. Over the chest, the arms and the legs there are small areas of normal-appearing skin. The hands, the face and the feet are covered with a more erythematous type of rash, which is scaly. The face and the hands show many areas of scarring. The skin of the entire body is dry and thickened. There is some patchy alopecia. There are small areas of papule-like eruptions, a few on the hands and one on the left calf. These are scaly, raised and nontender.

Axillary lymph nodes are palpable but not tender. No enlargement of epitrochlear, inguinal or cervical nodes is observed. The spleen and the liver are not palpable. No masses can be felt in the abdomen. The heart was not enlarged on percussion.

A slide carrying material from the scalp and the body did not show fungi on March 26, 1945.

DISCUSSION

DR. FRED WISE: There are about 60 cases like this one in Staten Island Hospital, all said to be due to quinacrine hydrochloride. The diagnosis is now made without any hesitation in cases of this kind. The patients are sensitive to light, and when they get out in the sun the skin flares up.

DR. A. BENSON CANNON: I wish to stress the remarks made by Dr. Wise. This eruption is a most common occurrence and a great hazard in tropical countries, affecting a large group of men to whom the drug was given as a preventive for malaria. In reality it is not similar to lichen planus as seen in this country. Dr. Hopkins says that he sees any number of such cases but that the lesions in them are not at all like the lesions seen in lichen planus.

DR. MAURICE J. COSTELLO: I saw a patient at Dr. Fox's office about one month ago with lesions of a violaceous color, similar to those presented by this patient. He stated that he had been taking quinacrine hydrochloride and that many of his comrades who had been taking this drug presented a similar eruption. The lesions, of dime to nickel size, were slightly infiltrated and left areas of atrophy on involution. He also had lesions in his mouth, undistinguishable from ordinary lichen planus.

CHICAGO DERMATOLOGICAL SOCIETY

Frederick R. Schmidt, M.D., *President*

Marcus R. Caro, M.D., *Secretary*

March 21, 1945

Leiomyoma Cutis. Presented by DR. CLARK W. FINNERUD.

R. T. A., a woman aged 29, complained of a painful eruption of the extremities of twenty years' duration. She stated that the areas were sensitive to changes of temperature and to the slightest pressure. She further stated that she was not interested in the eradication of the eruption but must do something to accomplish relief from pain which at times was excruciating and often prevented her from getting sufficient sleep. The patient was shown before the Chicago Dermatological Society several years previously by Dr. David V. Omens (ARCH. DERMAT. & SYPH. **43**:1071, 1941). Histologic sections were taken at that time.

The examination reveals extensive distribution of large groups of round and oval reddish brown firm nodules from the size of a pea to that of a bean, the involvement being chiefly of the extensor surface of the arms and forearms, the shoulders and the right leg. As the result of three roentgen ray treatments of 150 r each, filtered through 0.5 mm. of aluminum, there has been a decided alleviation of her discomfort.

DISCUSSION

DR. RUBEN NOMLAND, Iowa City: I think that this is an extremely interesting case. There are two general types of leiomyoma cutis, a disseminated type, such as this woman has, in which considerable pain is produced by heat, cold and pressure, and a different type in which the lesions are relatively localized with elongated, nodular papules.

DR. CLARK W. FINNERUD: This young lady was seen for the first time about a month ago. I believe I saw her four or five years ago with Dr. Omens at the Dispensary. She stated that new lesions apparently are still appearing. Since the time the sections were made by Dr. Omens large patches of these tumors have developed. The disease is so extensive and of such remarkable distribution I thought it would be worth demonstrating. In the few cases I have seen, I have never seen anything that compared with this one in extent. She stated that she did not care about the appearance of the eruption but that the pain was so excruciating she had to get relief or she would have to "kill herself." She was unable to sleep. By way of doing something, I gave her three treatments with roentgen rays. She said that from the time of the first treatment she had almost no discomfort. She had half a skin unit on three occasions and remains perfectly comfortable. I remember we used to teach, when we had the first little group

of 3 leiomyoma cases years ago, that it was necessary to perform a biopsy to make a diagnosis. I think we all feel now that we can make the diagnosis at a glance. I do not think that there is anything to confuse it with grossly, although maybe one cannot tell whether it is leiomyoma or fibroleiomyoma, but that does not matter.

Subacute Lupus Erythematosus. Presented by DR. FREDERICK R. SCHMIDT.

A. B., a white woman aged 40, presented herself at the skin clinic of Northwestern University in September 1944 with a facial eruption of one and a half year's duration. Exposure to a sun lamp had caused the eruption to spread over the face and the neck. The patient had lost 40 pounds (18.1 Kg.) in weight. Twelve injections of a preparation of bismuth were given in conjunction with nicotinic acid, but it was not until colloidal gold was used in place of the preparation of bismuth that involution of the lesions was noticeable. The patient states that she feels much better and that the rash does not itch any more.

The examination of the blood in September revealed a hemoglobin content of 10.9 Gm., 3,800,000 erythrocytes and 2,900 leukocytes with a normal differential count. The sedimentation rate at that time was 68 mm. One week ago the hemoglobin content of the blood was 10.9 Gm., the erythrocyte count 3,900,000 and the leukocyte count 3,100, and the sedimentation rate had fallen to 44 mm. The Wassermann reaction of the blood was negative.

Chronic Discoid Lupus Erythematosus. Presented by DR. FREDERICK R. SCHMIDT.

C. H., a white woman aged 60, from the skin clinic of Northwestern University, had had a facial eruption for eighteen years. Six months ago treatment with nicotinic acid and colloidal gold was instituted. The lesions on the face have cleared to a great extent, leaving areas of atrophy dotted with widened follicular orifices. On the chin is a hypertrophic lesion with cribriform atrophy.

The examination of the blood showed a hemoglobin content of 14.7 Gm. and 4,580,000 erythrocytes. At the time when therapy was started the leukocyte count was 4,450, and recently it was 5,350. The sedimentation rate was 18 mm. and now is 12.5 mm. The Wassermann reaction of the blood was negative.

Chronic Discoid Lupus Erythematosus. Presented by DR. FREDERICK R. SCHMIDT.

E. S., a white woman aged 46, presented herself at the outpatient department of Grant Hospital twelve years ago with an eruption which had appeared after a sunburn. Beginning on the face at that time, the rash gradually spread to the scalp and the chest. The patient's mother died of tuberculosis. The patient had received two hundred and twenty injections of crystalloidal gold and 100 injections of a preparation of bismuth up to July 1944, when vasodilator treatment with injections of colloidal gold was instituted. There has since then been a decided improvement in the appearance of the lesions, many of which have disappeared.

The results of the examination of the blood were as follows: Hemoglobin content varied between 72 and 78 per cent; erythrocytes between 4,000,000 and 4,500,000, and leukocytes between 8,000 and 10,400 (the last count, taken after eight months of treatment with colloidal gold, was 8,200). The sedimentation rate was 22 mm. one year ago and 8 mm. a few days ago; the icteric index was 5. Repeated cultures of the blood were negative for pathogens. The Wassermann reaction of the blood was negative.

DISCUSSION

DR. THEODORE CORNBLEET: Was the leukocyte count of 2,900 in the first patient presented before or after the treatment with colloidal gold?

DR. FREDERICK R. SCHMIDT: It was before, in September.

DR. S. J. ZAKON: What dose was used?

DR. FREDERICK R. SCHMIDT: In the treatment with vasodilators I used nicotinic acid to overcome vasospasm of the terminal arterioles of the skin, which seems to be present in most cases of lupus erythematosus. Beinhauer and his associates showed that in healed lesions of lupus erythematosus that had been treated with gold there was gold demonstrable spectrographically (Beinhauer, L. G.; Jacob, F. M., and Beebe, P. L.: Spectrographic Analysis of Gold in Skin Following Treatment of Lupus Erythematosus, ARCH. DERMAT. & SYPH. **50**:315 [Nov.] 1944). In the lesions which did not respond to treatment, no gold was found. I first used iodine to increase tissue oxidation, but that did not prove satisfactory; then I tried various forms of vasodilators, such as erythrityl tetranitrate, and then settled on nicotinic acid because it causes flushing and is economical. It is important to use large doses of nicotinic acid, such as 100 mg. four times a day. I have the patients take 100 mg. before they have an injection with the idea of overcoming the vascular spasm.

The idea of using colloidal gold rather than crystalloidal gold is based on the fact that colloids, according to the work of many authorities, stimulate the production of leukocytes and can be used in much larger doses. I use 86 mg. of colloidal gold by intravenous injection. One can give it intramuscularly and orally, so that it can be given by mouth to children.

The results have been encouraging. I should say that the results in the chronic discoid type have been most encouraging. As for the subacute and acute types, I have treated only 2 patients, and the results are undetermined. The vasodilator treatment alone, I think, is the treatment of choice in subacute and acute lupus erythematosus without a preparation of bismuth or gold. The fact that colloidal gold stimulates the production of leukocytes and brings down the sedimentation rate is a distinct advantage over crystalloidal gold therapy. In the acute type of lupus erythematosus I think that one should produce vasodilatation with large doses of sodium nitrite or some other vasodilator intravenously at the same time as nicotinic acid is given by mouth.

DR. HARRY R. FOERSTER, Milwaukee: We have observed good response in cases of this type with nicotinic acid alone, as well as when it is given with either a preparation of bismuth or gold. Another important consideration in the treatment is the use of a photoprotective lotion or ointment, as indicated in 2 of the patients presented today in whom photosensitization is an important factor.

DR. THEODORE CORNBLEET: For a number of patients with lupus erythematosus we have presented here in the past we have recommended the use of nicotinic acid. It was given in conjunction with extract of liver.

DR. STEPHEN ROTHMAN: Is colloidal gold a metal?

DR. FREDERICK R. SCHMIDT: It is colloidal gold sulfide. I agree with Dr. Cornbleet that especially in the acute or subacute forms treatment with large doses of a vasodilator in conjunction with liver is indicated.

DR. S. J. ZAKON: What preparation do you use?

DR. FREDERICK R. SCHMIDT: It is manufactured by Hille.

DR. S. J. ZAKON: The name colloidal gold sulfide is a misnomer. It is a refined crystalloid; it is not a colloid. My restudy of the available literature on colloidal gold sulfide proves my statement to be entirely correct. Colloidal mercury sulfide is in a colloidal state and is accepted by the Council on Pharmacy and Chemistry of the American Medical Association as such. Colloidal gold has not as yet been submitted to the Council on Pharmacy and Chemistry for acceptance.

DR. FREDERICK R. SCHMIDT: One hundred patients were treated in this clinic, and colloidal gold produced no depression of the leukocyte count as the other gold salts did.

DR. STEPHEN ROTHMAN: Dr. Schmidt states that his preparation of gold sulfide is given intravenously. In this case it must have colloidal dispersion; other-

wise it would cause pulmonary embolism. Gold sulfide is not soluble in water and probably is kept in colloidal solution by the presence of some protective colloid.

DR. CARL W. LAYMON, Minneapolis: In the French literature about five years ago there were several cases of eruptions due to photosensitization in which much benefit was derived from the use of nicotinic acid. Perhaps the beneficial effect in lupus erythematosus may be due to a reduction of photosensitivity.

DR. THEODORE CORNBLEET: We began the use of nicotinic acid in the treatment of lupus erythematosus after experiments indicated that this vitamin was capable of reducing light sensitivity in the presence of porphyrins.

DR. FREDERICK R. SCHMIDT: Vasodilatation is secured in lupus erythematosus as it has been proved to exist in certain conditions of the eye. One patient had an associated choroiditis which disappeared with vasodilator treatment after spasm of the vessels had been overcome.

Dermatomyositis. Presented by DR. S. W. BECKER and (by invitation) DR. S. R. MERCER.

N. M. G., a girl aged 20, noted a red patch 3 cm. in diameter on the right arm during the summer of 1943. Then one night she experienced severe generalized itching. The disease improved under treatment. In the winter of 1943 she had crusting lesions in the cubital spaces which also disappeared under treatment. At this time the skin of the arms and face became stiffened, and the joints developed limitation of motion. Red patches developed over the joints of the fingers and over the elbows. She felt tired and weak all the time, although she continued to work and, as far as she knows, she had not been febrile. She has had no discomfort in the muscles.

At present she shows thickening and stiffness of the skin of the arms, the forearms, the face and the neck. There is limitation of motion in the joints, especially those of the elbows. Over the elbows and in the linear arrangement over the extensor surfaces of the finger joints the skin is erythematous and atrophic. The face and neck are slightly erythematous. The muscles feel atrophic.

The histologic study of sections taken from the arm revealed the stratum corneum to be thickened and loose. The epidermis was somewhat thin and edematous in its inner portion. The dermis showed vascular dilatation, minimal perivascular infiltration, considerable edema and homogenization of the collagen bundles. The histologic study of sections taken from the left thumb revealed hyperkeratosis and slight atrophy of the stratum mucosum with edema at the epidermodermal junction. The superficial dermal vessels were dilated with slight perivascular infiltration. The collagen extended more deeply than normal, and the deeper bundles were large and homogenized.

DISCUSSION

DR. HAMILTON MONTGOMERY, Rochester, Minn.: This is a classical example of dermatomyositis. Many years ago I saw a girl, then 8 years of age, with a dermatitis on the exposed surfaces similar to that which this patient has. I made a diagnosis of disseminated lupus erythematosus because of the involvement of the fingers, the sternum, and so forth. The histopathologic structure, however, was that of a toxic erythema, as is also true in this present case, and it revealed none of the features of lupus erythematosus. The child of whom I speak went on to progressive muscular atrophy, ankylosis and deformity of the joints and, later, at the time of puberty, showed male characteristics together with hypertrophy of the clitoris, hirsutism and a male voice. There were many areas of calcification.

I have seen at least a half dozen cases like that of this patient presented today in which in the beginning it has been somewhat difficult to distinguish dermatomyositis from disseminate lupus erythematosus. In dermatomyositis there is no elevation of the sedimentation rate, the leukocyte count is normal or slightly increased and the creatine determinations are elevated; whereas in disseminate

lupus erythematosus there usually is a leukopenia, elevation of the sedimentation rate and no disturbance in creatine determinations.

DR. MAURICE OPPENHEIM (by invitation): There is no doubt about the diagnosis of dermatomyositis. Atrophy of the muscles, particularly of the deltoid muscles, and sensitiveness of the muscles are present. Dermatomyositis is found mostly in the female. Dr. Rattner presented a case here some time ago in which I suggested that tests be made for creatine and creatinine and the patient treated with aminoacetic acid. In 1 case which I presented before the Vienna Dermatological Society I found creatine and creatinine increased and had good results with aminoacetic acid. In all these cases a biopsy of the atrophic muscles should be performed.

DR. HERBERT RATTNER: Our case was complicated by the fact that the patient had carcinoma with metastases and cachexia. She died very soon after she was presented before this society.

DR. HAMILTON MONTGOMERY: We have seen many cases of dermatomyositis in males as well as in females.

DR. S. R. MERCER, Fort Wayne, Ind. (by invitation): I saw this girl last June for the first time, and I have seen her at intervals of two months since that time. In the last month she has definitely regressed. Until then I was encouraged, but I have not been with the last observations. In June a blood examination showed 4,350 leukocytes with 62 per cent polymorphonuclear cells, 18 per cent lymphocytes, 3 per cent eosinophils and 17 per cent monocytes, and the hemoglobin content of the blood was 78 per cent. The basal metabolic rate was normal. We gave her iron and thyroid, and the process slowed up a bit. She apparently came along fairly well, felt better and looked better. It is interesting that there is no history of illness in the past except chickenpox and whooping cough when she was young, and tonsillitis from time to time. The striking thing to me is the atrophy of the fingers, which has become more pronounced as time has gone on.

Lichen Striatus. Presented by DR. STEPHEN ROTHMAN and (by invitation) DR. DOROTHY J. NIEDERMAN.

K. K., a white girl aged 16 months, has always been in good health. Early in December 1944 the mother noticed a linear lesion on the baby's right side. The Infant Welfare Station recommended application of alum on the supposition that this was a scratch. A few weeks later tiny nodules appeared along the line. Zinc oxide ointment was applied to the lesion. After a few more weeks an eruption was seen on the right buttocks. There apparently was no itching.

The patient was first seen in the dermatology clinic of the University of Chicago Clinics on Feb. 1, 1945. Posteriorly on the right thigh, extending from the gluteal fold to the popliteal fossa, there was a linear lesion consisting of confluent, infiltrated, glistening, pinkish yellow, rounded papules, the size of a pinpoint to that of a pinhead. Fine scaling was seen on some of the papules. The width of the line was 8 mm. at its broadest point. The line appeared interrupted by normal skin at several points. On the right buttock there were three groups of irregularly shaped confluent papules similar to those of the linear lesion, not in line with it but lateral to it. The lesions as a whole seemed to be located along the projection of the course of the sciatic nerve.

After application of a zinc lotion for one week the inflammatory tenderness has decreased.

The histologic examination of a section removed from a lesion showed the horny layer to be thickened in patches, and in a few places there was parakeratosis. The granular layer was absent in most parts of the section. The malpighian layer showed intercellular and intracellular edema. The basal layer was intact, but the lower part of the epidermis was invaded by migrating cells. The rete pegs were broadened and confluent. The papillary and subpapillary layers showed extensive edema and dilatation of the blood vessels consisting of lymphocytes and connective

tissue cells. The infiltrate was fairly sharply demarcated in the subpapillary layer. However, circumscribed round infiltrates of the same type were also seen at the junction of dermis and subdermis, particularly around the sweat glands.

DISCUSSION

DR. MARCUS R. CARO: I think that in every case in which there is a sudden appearance of linear streaks of lichenoid papules four conditions must be considered: linear psoriasis, linear lichen planus, linear nevus and lichen striatus. In the series of cases Dr. Senear and I reported (Lichen Striatus, ARCH. DERMAT. & SYPH. **43**:116, 1941) nearly all the lesions were on the upper extremity. We felt that patients with lesions on the lower extremities probably could be classified in the other groups. The clinical course is also characteristic, and it helps to differentiate the diseases. In lichen striatus the lesions are self limited, and within a few weeks or months they disappear spontaneously, whereas linear psoriasis and linear lichen planus are resistant to treatment. In the present case there was much more inflammation histologically than is generally seen in lichen striatus, but I think that the lesions may have been irritated before the biopsy was performed.

DR. STEPHEN ROTHMAN: I appreciate the discussion by Dr. Caro. I have noted that in all cases reported by Senear and Caro the lesions were on the upper extremities. Still the clinical and histologic picture is typical enough to maintain the diagnosis.

Facial Hemiatrophy. Presented by DR. THEODORE CORNBLEET.

R. B., a white boy aged 12, had a brown spot over the right mandible several years ago. He was delivered by forceps which the mother says left two scars. When he was 2 years old he suffered a "concussion" of the head. The first notable changes were seen last year.

At the present time there is a flattening of the right side of the head. The soft tissues are definitely thinner as compared with those on the other side. The nose is pulled over slightly to the left. There is a geographic tongue, and the gums on the affected side are atrophied. The teeth on the right side appear to be slightly shorter than those on the left. There is a linear scar extending part of the way from the right eyebrow to within the hair line. The patient complains of headaches.

DISCUSSION

DR. THEODORE CORNBLEET: I think that the consensus seems to place hemiatrophy of the face in the scleroderma group as a form of circumscribed scleroderma. I do not know anything specific for relief or the prevention of further development. Calcium is laid down diffusely in the sclerodermatous tissue, and its presence may contribute to the qualities of the latter. Several methods exist for attacking this newly laid down material, such as the administration of ammonium chloride and large doses of vitamin D. This approach may be pursued, but too much is not expected of it.

A Case for Diagnosis. Presented by DR. THEODORE CORNBLEET and (by invitation) DR. D. COHEN.

O. W., a woman aged 35, stated that fourteen months ago a blister appeared on the medial aspect of the right foot. On removal of the overlying epidermis, gelatinous material was found, and there was a smooth granulating ridge at the base. The blister has been broken four times and has recurred each time. Smears of the gelatinous fluid were negative.

A biopsy of the granulating tissue was performed, and histologic examination of the section showed an intraepidermal vesicle with the separation seen beneath the granular layer. The epidermis showed a moderate degree of edema in the basal layer and an irregular acanthosis. The corium showed a diffuse edema with dilatation of the blood vessels and much extravasation of erythrocytes, especially in the upper part. Mucin could not be demonstrated.

DISCUSSION

DR. THEODORE CORNBLEET: The patient's lesion has practically disappeared at the present time. When I saw her last week I thought that she had something worth while to present. She had this large, thick-walled blister which enclosed a granuloma of some type, possibly a granuloma pyogenicum. The blister was opened and a biopsy specimen taken from the structure within. The ease and rapidity with which resolution has taken place raised the possibility that the lesion was due to the presence of a foreign body. A biopsy could have eliminated the latter.

DR. CLARK W. FINNERUD: I thought from the history, though I did not see the sections, that it might be a synovial lesion of the skin. I never saw one on the foot but I do not see why it could not occur there.

DR. THEODORE CORNBLEET: The lesion consisted of a true blister, which is not true of a synovial cyst. The granuloma which the bulla enclosed was not attached to tendons or their sheaths.

DR. MARCUS R. CARO: I think that histologically a synovial lesion could be ruled out. The histologic changes present were such as are generally seen in a chronic inflammatory edema.

DR. CLARK W. FINNERUD: The only thing that made me think of that diagnosis was that according to the history she had a blister-like lesion from which a gelatinous, clear fluid could be obtained on puncture.

DR. THEODORE CORNBLEET: The ordinary synovial cyst is not a bulla, a purely epidermal roof over fluid. It is covered by the whole thickness of skin.

A Case for Diagnosis (Sycosis? Deep Mycosis?). Presented by DR. THEODORE CORNBLEET.

On the face and neck of R. S., a white man aged 33, a number of patches of dermatitis developed within one week. The entire eruption began three weeks ago. The lesions are sharply outlined and elevated, particularly the one on the upper lip. There are insets of pustules in the patches and a few follicular ones also beyond the plaques. The lesions have remained of the same character and size since their beginning. One enlarged lymph node just below the angle of the left mandible has disappeared.

The patient complains of severe headaches, but these were present before the eruption appeared. There is spasmodic pain in the patches.

Direct examination of the pus shows many budding forms of fungi but not of the character of Blastomyces. The cultures have not yet returned.

DISCUSSION

DR. OSGOODE S. PHILPOTT, Denver (by invitation): We see this disease often in Denver in ranchers from the outlying cattle country. It is usually resistant to local treatment, even when strong fungicides are employed. Occasionally the pustular nature of the lesion makes a picture identical with that of kerion. The best results we have obtained in treating the disease with filtered roentgen rays (0.25 mm. of aluminum) combined with hot potassium permanganate compresses. The disease is rarely seen in the scalp but occurs commonly on the jaws or neck.

The history given by this patient is fairly typical. He stated that he bought some new cows, one of which had a sore which the veterinarian described as ringworm. Shortly afterward this lesion developed, which grew rapidly. The diagnosis we make in this disease is granuloma trichophyticum. We have examined a number of lesions carefully for Blastomyces but have never found it in this type of lesion.

DR. HAMILTON MONTGOMERY, Rochester, Minn.: We also see a great many of these cases in farmers, either adults or children. The fungus demonstrated is usually a large spore ectothrix.

DR. S. R. MERCER, Fort Wayne, Ind. (by invitation): The large spore type is what I see. This type of organism is new to me. We remove the hairs with a tweezer each day and apply wet dressings of potassium permanganate and then apply 5 per cent ammoniated mercury ointment.

DR. MAURICE OPPENHEIM (by invitation): The clinical picture is that of a deep trichophyton infection. It is limited to the beard and gives the impression of parasitic sycosis. It is interesting that fungi were found immediately. Mostly in such cases they are found only by culture. I should like to make the suggestion of testing the skin with trichophytin. In cases of parasitic sycosis the reaction to the trichophytin test is highly positive. Then the treatment is simple. Immunization with gradually increasing doses of trichophytin is the method of choice. Parasitic sycosis and kerion Celsi are healed in short time by intracutaneous injections of trichophytin. The local treatment consists of different salves and compresses.

DR. HENRY E. MICHELSON, Minneapolis: This disease is so common with us that we hardly get excited over it. There are a few interesting facts, however, that I have observed about kerion. We usually see it in young people, and it is much commoner in the winter months when infected calves are handled in the barn. After the calves are put out in the pasture we rarely see this trouble. It is much commoner on the dairy farms than it is in ranchers who do not handle stock so intimately.

Our treatment is a simple one because the process is self limited. We do not use roentgen rays. We occasionally use hot compresses, and we often freeze with solid carbon dioxide and use 25 per cent salicylic acid in petrolatum. For the resistant cases we epilate manually and occasionally we have to resort to the treatment introduced by the late Dr. William Mook. That is the intravenous use of typhoid vaccine for three successive days.

DR. H. M. BULEY, Champaign, Ill. (by invitation): In the central part of Illinois we now see more cases of deep ringworm than before the war. The incidence of infection has greatly increased, especially among adults. The reason for this probably is that the farmers who are short of help do not find the time to attend to their cattle as carefully as they used to and that infection among their stock is commoner than in the past. As far as treatment is concerned, we use roentgen ray therapy for quick epilation of the infected area. Then hot wet dressings are applied with a mixture of diluted alcohol and solution of aluminum acetate, N. F. Two weeks after the irradiation, the epilation is completed manually. I have found that with this regimen a cure may be attained in three or four weeks.

DR. STEPHEN ROTHMAN: Everybody agrees that this form of sycosis barbae is caused by animal strains of Trichophyton, and most of the cases mentioned in this discussion originated from direct contact with animals. However, I experienced an extended epidemic in 1918 and 1919, spread in barber shops and mainly by shaving brushes. In these cases the great tendency to spontaneous cure was obvious, and not much therapy was needed. We applied local heat, mild fungicidals and partial manual epilation. Roentgen ray epilation was rarely needed. Cure was achieved in about six weeks. The strong trichophytin reaction indicates that there is good biologic defense against this form of infection.

DR. RUBEN NOMLAND, Iowa City: I think that the best treatment is manual epilation and a mild antiseptic for local preparation. This man can be cleared up in twenty minutes of manual epilation, and in forty-eight hours the remaining infected hairs can be picked out, and in a week he will be well. To wait for roentgen ray epilation is a waste of time. It is not painful except in the upper and lower lips.

DR. FRANCIS W. LYNCH, St. Paul: In considering that form of kerion which has just been discussed, it is well to recall that the same organism (usually Trichophyton gypseum) can produce an inflammatory papular eruption on glabrous

skin. Many patients present superficial involvement on the trunk or extremities and deep involvement (kerion) of the scalp or bearded areas. When suffering from extensive kerion, these patients frequently exhibit a disseminated id reaction of hypersensitivity.

Dr. Carl W. Laymon, Minneapolis: It seems amazing that every one who has discussed this case has a different method of therapy. Because of the highly inflammatory nature of kerion there is a tendency toward spontaneous cure in two or three months following shedding of the hairs due to the intense reaction. In my opinion epilating doses of roentgen rays are not only unnecessary but unwarranted in this form of fungous infection.

Dr. H. M. Buley (by invitation): I am impressed by the differing opinions and observations we have heard here from representatives of various sections of the country. Perhaps the differences in climate and its influence on the virulence of the fungi may partly explain the variety of observations on mycologically identical infections. From my observations in Philadelphia and in downstate Illinois, it seems to me that in this country in most cases the disease responds more readily to simpler forms of therapy. I should like to say a word in defense of roentgen epilation in cases of deep ringworm infections. While it is true that we can epilate manually without the aid of the roentgen rays, this technic is painful, and patients, especially children, will resist and delay the manual epilation alone. On the other hand, the irradiated hairs can be easily removed at the proper time without pain. I believe, therefore, that roentgen ray epilation is the preferable method.

Dr. Theodore Cornbleet: I confess that for me the kind of lesion shown by my patient is a rarity. This emphasizes again that locality influences the distribution of disease. I, too, suspected a fungous infection in the bearded area. We found fungi locally. I do not know the variety because the culture which was made has not grown out yet. From the remarks that have been made, there have been several treatments that have been successfully used by the members. What is the common denominator for these various forms of therapy? The lesions are deep, pus producers, really kerion. Are they self limited? Perhaps mild, cleansing applications will suffice.

Leukemic Erythroderma, Localized? Presented by Dr. Stephen Rothman and (by invitation) Dr. Zachary Felsher.

R. W., a white man aged 33, has been under treatment for chronic lymphatic leukemia for the past six years at the University of Chicago Clinics. The treatment consisted mainly of high voltage roentgen ray irradiations of spleen and lymph nodes. For the past year the patient noted a recurrent redness of the face and the scalp. At first the redness would appear when he was under emotional stress and last for a few minutes, but recently the erythema has been permanent. However, it became more accentuated when the patient thought of its presence. He has had no roentgen ray therapy to these areas.

On his admission on Jan. 10, 1945, there was spotty erythema on parietal, temporal and postauricular regions and on the cheeks in strictly symmetric arrangement. The redness remained unchanged for an observation period of ten minutes. A few weeks later a slight infiltration was noted in the postauricular regions, and high voltage roentgen ray therapy was given to these areas. Soon after that the infiltrates disappeared.

Histologic examination of a section taken from the cheek showed localized massive monomorphous infiltrates consisting of lymphocytes. In the upper and middle layers of the corium there was a band of normal connective tissue between the infiltrate and the epidermis.

The current laboratory findings were as follows: normal blood count, normal differential count, normal urine and negative Wassermann and Kahn reactions.

The lymph nodes of the chest and the mesentery are well under control.

DISCUSSION

DR. FRANCIS W. LYNCH, St. Paul: This is a very interesting and unusual case. I think that the section is fairly characteristic for the specific changes of leukemia cutis, but that there is some question as to the use of the title "erythroderma," a term usually reserved for application to more extensive and more infiltrative processes. The present state might possibly be the precursor of a poikiloderma-like eruption such as has been described in a small number of cases of leukemia.

DR. STEPHEN ROTHMAN: Of course, this is not an erythroderma exfoliativum because there is no scaling and the condition is not generalized. I used the term "erythroderma" because it expresses well the clinical picture of dusky red discoloration. However, I agree that on the basis of the histologic picture it rather should be called leukemia cutis.

Hodgkin's Disease. Presented by DR. THEODORE CORNBLEET and (by invitation) DR. D. COHEN and DR. E. KAGAN.

J. C., a woman aged 48, was presented last year because of generalized pruritus of unknown cause. At that time there was a blanket diagnosis of lymphoblastoma. The changes in the lymph nodes and the skin were nonspecific. Since then the lymph glands show changes of Hodgkin's disease. The skin is pigmented and thickened, and there are numerous excoriations accessible. The lymph nodes are large, and the liver is down to the umbilicus.

The urine showed a trace of albumin but no sugar. The blood count showed a hemoglobin content of 69 per cent, erythrocytes 4,490,000 and leukocytes 28,350, with a differential count of neutrophils 83 per cent, eosinophils 2 per cent, lymphocytes 10 per cent and monocytes 5 per cent. There was anisocytosis and microcytosis. The bone marrow showed an increase in plasma cells. The roentgenogram of the chest revealed widening of the mediastinum. The Kahn reaction of the blood was negative.

A biopsy was performed on one of the lymph glands, and histologic study of a section showed Hodgkin's lymphogranulomatosis.

DISCUSSION

DR. STEPHEN ROTHMAN: I should like to call attention to the symptomatic relief by ultraviolet irradiation in generalized pruritus due to lymphoblastoma, internal malignant tumors and pregnancy. This antipruriginous effect is obviously purely symptomatic. It seems that the ultraviolet rays, like the roentgen rays, elevate the sensory threshold of the intraepithelial free nerve endings. Soft roentgen rays, of course, are more effective but not always available, and the technic of roentgen irradiation of the whole body surface is not simple.

DR. THEODORE CORNBLEET: The excoriations vanished shortly after irradiation with roentgen rays. It is claimed that six months ago the taking of a roentgenogram of the mediastinum arrested the generalized pruritus temporarily. Pruritus preceded the cutaneous lesions for a year.

Benign Superficial Epitheliomatosis. Presented by DR. D. OMENS and (by invitation) DR. M. S. KAGAN.

This woman has superficial scaling lesions which appeared on the back thirty-five years ago, spreading over a period of years to involve the center of the back from the sacrum to the midscapular area. The lesions are moderately infiltrated, and several have healed in the center. The photograph presents the disease as it appeared fifteen years ago.

DISCUSSION

DR. CLARK W. FINNERUD: This woman was seen about fifteen years ago at Rush, and we all used her for teaching purposes for a long time. The most interesting thing about the case at that time was that some of the lesions clinically

looked as though they might be of squamous cell character, but microscopically they all were of basal cell character. When we finished the teaching some one eradicated all the existing lesions, and subsequently those seen today developed.

DR. H. E. MICHELSON, Minneapolis: There are some interesting facts about superficial epitheliomatosis. It is a subject which is largely handled in the American literature and there are few European reports. A number of years ago Dr. Fred Wise read a paper on what he termed "benign epitheliomatosis." It is well to call attention to the fact that these cases are not all benign by any means and that any form of cancer may be found in the so-called superficial type. Another thing that I have noticed is that patients with this tendency are prone to have new lesions, some over many years' time. The tendency might be compared to the tendency found in xeroderma pigmentosum, only undoubtedly the process is different.

DR. THEODORE CORNBLEET: I saw one patient with superficial epitheliomatosis whose lesions could have developed as the result of arsenic. The amount in the hair was not excessive. In another patient, arsenic did not seem to be the basis as far as one could judge by close questioning or by the quantity present in the hair.

DR. STEPHEN ROTHMAN: I agree with Dr. Michelson that these cases were rarely seen in Europe.

DR. HAMILTON MONTGOMERY, Rochester, Minn.: There are many cases reported in Europe under the term carcinoid (Arning). Dorffel, a former special student at the Clinic, reported some 10 to 12 cases shortly after he returned to Germany. I prefer the term "superficial epitheliomatosis" because Dr. O. S. Ormsby used this term before Little employed the term "erythematoid benign epithelioma." I do not like the term "benign" because in some instances, especially in the moist eczematoid lesions, the histologic structure is that of basal squamous cell or squamous cell epithelioma. Metastasis and death have occurred, as exemplified by a case presented many years ago by Dr. Ormsby and Dr. Mitchell. The usual dry type of plaque has a fine threadlike, pearly border and is histologically basal cell epithelioma. Superficial epithelioma attributable to the ingestion of arsenic usually presents a more ill defined plaque without a sharp border and frequently is associated with arsenical keratoses of the palms and soles. One usually obtains a history of ingestion of arsenic. The patient presented today gave no history of ingestion of arsenic and had no keratoses. When arsenic is a factor in superficial epithelioma of the trunk and elsewhere, one can demonstrate more arsenic in the epithelioma than in the adjacent normal skin by quantitative chemical analysis. Occasionally one sees lesions of superficial epitheliomatosis and superficial epithelioma due to arsenic occurring in the same patient, and it is these cases, I believe, that have led to confusion and to the tendency of some dermatologists to attribute superficial epitheliomatosis to arsenic. Arsenic cannot be demonstrated in the typical case of superficial epitheliomatosis.

DR. STEPHEN ROTHMAN: In cases which histologically proved to be of basal cell epitheliomas, roentgen ray treatment has produced permanent cures.

DR. HAMILTON MONTGOMERY: These lesions usually occur on the trunk and in areas where they usually can be excised and the skin drawn together without even requiring a graft. When a plaque is large, we often excise and do a skin graft using the Paget dermatome knife. Smaller lesions can be cauterized. The lesions of superficial epithelioma are usually resistant to radiotherapy. I have seen their persistence or recurrence in a region in which roentgen ray treatment has been given to the point of developing actinodermatitis.

DR. JAMES H. MITCHELL: I have been interested in these cases ever since the first patient I saw when in the office with Dr. Ormsby. The marble-like lines are diagnostic of the basal cell type. As Dr. Montgomery observed, they are rarely fatal. Another spectacular case occurred some years ago. The lower pole of the lesion was basal cell and responded perfectly, whereas the upper pole was squamous cell. The patient refused excision and went on to death, showing

a beautiful type of mixed lesion. I have 1 patient whom I have had under observation for more than thirty years. His entire trunk and arms are covered with squamous cell lesions of a low grade epitheliomatous type. He has had some excised, and all of them show a low grade squamous type of cell. He has survived all these years. A squamous cell lesion of the bladder will probably cause his death before long.

DR. HAMILTON MONTGOMERY: We had 1 patient with an arsenical type of epithelioma of the trunk in whom there developed a squamous cell epithelioma, grade 3, of the urethra with no recurrence in several years after partial amputation of the penis. He died later, however, of what was termed an endothelioma of the pleura but which histologically showed squamous cell epithelioma, grade 3, with a decided degree of individual cell keratinization.

DR. MARCUS R. CARO: My experience with a comparatively small number of superficial epitheliomas is that they do not respond well to roentgen ray or radium. In the superficial basal cell type I get better results with deep freezing with solid carbon dioxide.

A Case for Diagnosis (Rosacea? Rosacea-Like Tuberculid?). Presented by DR. THEODORE CORNBLEET and DR. H. SCHORR.

This white man aged 60 had a papular erythematous eruption on the face and the scalp ten years ago. Three months ago an ulcer appeared on the right, having a circinate border with steep edges.

The Kahn reaction of the blood was negative. The urine was normal. A tuberculin test (1:10,000) elicited a positive reaction.

The histologic examination of a specimen taken from the face showed a slight edema of the epidermis, dilatation of the blood vessels throughout the corium and many fairly well circumscribed nests of cellular infiltrate composed largely of epithelioid cells and lymphocytes in the upper part of the corium and extending downward about the hair follicle.

DISCUSSION

DR. HARRY R. FOERSTER, Milwaukee: This case should not be passed without discussion because it has been presented as a Lewandowski type of tuberculid. I believe the patient had rosacea, a low grade staphylococcic folliculitis, and seborrhea with considerable scarring such as is seen in staphylococcic infections of the acne varioliformis type.

DR. STEPHEN ROTHMAN: The picture does not correspond with that of rosacea-like tuberculid. Possibly the presenters had "acnitis" and "folliclis" of Barthelemy in mind, acneform lesions interpreted by many authors as tuberculids.

DR. THEODORE CORNBLEET: The eruption is superficial. There are no telangiectases. There is erythema and atrophy, the latter most noticeable over the temporal area.

Lymphosarcoma (Reticulum Cell) with General Pruritus. Presented by DR. THEODORE CORNBLEET, DR. HENRY SCHORR and (by invitation) DR. E. KAGEN.

In R. G., a man aged 72, a mass above the right scapula developed nine months ago. This grew to the size of a small grapefruit within a few weeks. At the same time, small tumors appeared on the chest and the neck. Roentgen ray therapy succeeded in diminishing the size of the large tumor and apparently in removing the others. Treatment was interrupted, and following this new lesions appeared in the lungs, the abdomen and the skin. The patient received some relief from his severe generalized itching while receiving fairly large doses of salicylates, but coincident with resumption of radiotherapy to the chest all pruritus disappeared.

The urine was normal. Chemical analysis of the blood showed a nonprotein nitrogen of 42 mg., chlorides of 480 mg., an icteric index of 11 and total protein of 5.6 Gm. The blood showed a hemoglobin content of 68 per cent; erythrocytes, 3,950,000, and leukocytes, 2,950, with a differential count of neutrophils, 65 per cent; lymphocytes, 12 per cent; basophils, 1 per cent, and monocytes, 19 per cent.

Histologically the tissue section showed a reticulum cell sarcoma.

DISCUSSION

DR. HAMILTON MONTGOMERY, Rochester, Minn.: I agree with the diagnosis. This is a reticulum cell type of lymphosarcoma and not ordinary small round cell lymphosarcoma. The reticular cells are well shown in the section.

DR. THEODORE CORNBLEET: It takes time for the lymphoblastomas to ripen. Last year one could not tell the variety in this patient. Since then it has gone from the general to the specific form of lymphosarcoma.

Epithelioma with Overlying Cutaneous Horn. Presented by DR. D. OMENS and (by invitation) DR. M. S. KAGEN.

Five months ago this patient noticed a small black pimple on the lower lip which developed into a cutaneous horn the size of a quarter.

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY AND SYPHILIS

Harry C. Saunders, M.D., *Chairman*

Frank Vero, M.D., *Secretary*

April 3, 1945

Anaplastic Epithelioma of the Toe. Presented by DR. ANDREW H. MONTGOMERY.

J. E., a woman aged 65, was first examined by me on March 16, 1945. She complained of a mass under the right middle toe which has been present for two years. The history of the mass is sketchy, and unfortunately its original condition is unknown. During the first year the growing lesion was examined by two physicians and by two chiropodists, and for a time it was under treatment in the surgical division of a hospital. Apparently at that time it was not considered of a serious nature, for all treatments consisted only in the applications of ointments. During a month's sojourn in the hospital for a disease of the bladder, no attention was paid to the foot. She was never examined by a dermatologist. For the past year there has been no professional care, the patient making her own applications. Recently an edema of the right ankle impelled her to seek treatment.

On the under surface of the right middle toe there is a large, malodorous, ulcerative mass. It is widely attached along the under surface. It extends dorsally between adjacent toes, with rolled elevated margins.

The pathologic report by Dr. Charles F. Sims stated that the epidermis was notably and irregularly acanthotic. Many of the rete cells were large with hyperchromatic nuclei and several nucleoli. Clumped nuclei and mitotic figures (both typical and atypical) were noted. The diagnosis was anaplastic epithelioma.

DISCUSSION

DR. CHARLES WOLF: Clinically, this has the earmarks of a malignant lesion, and it is a question whether the patient has involvement of the regional lymph nodes. If she has, it is an inoperable case; however, failure to find palpable nodes

in the groins does not eliminate the possibility of metastasis. Since the patient is an old lady, I think I should approach the problem conservatively, using high voltage roentgen rays locally, with regional therapy to the groin.

DR. WILBERT SACHS: There are only three possibilities in regard to anaplastic epithelioma: first, that it developed from a previously existing basal or prickle cell epithelioma; second, that it developed directly from the skin, and third, that there was previously a junction nevus. I cannot see a previous nevus in the slide, but should assume that there had been one because the patient would certainly have been aware of the existence of a basal or prickle cell lesion. I know of only 1 or 2 cases in which Bowen's tumor developed on the toe, whereas nevocarcinoma is common here.

DR. ANDREW H. MONTGOMERY: There was no enlargement of the regional lymph nodes. Considering the patient's age, I thought high voltage roentgen rays would be the proper therapy.

Epidermodysplasia Verruciformis (Lewandowsky-Lutz); Keratosis Palmaris et Plantaris; Latent Syphilis. Presented by DR. FRANK VERO.

M. C., a white woman aged 38, is presented from the New York Polyclinic Medical School and Hospital with an eruption on the upper and the lower extremities which has been present from early childhood.

The patient was transferred to Polyclinic Hospital in September 1944 from Roosevelt Hospital, where she had been receiving antisyphilitic treatment for about a year and treatment for an injury to the left leg. She stated that since her earliest childhood she had had wartlike lesions on the hands and the feet, but that the changes on the palms and the plantar aspects of the feet were noticed only about six years ago. During 1934 the patient had an oophorectomy and a salpingectomy. Since September she has received twelve injections of a preparation of bismuth and five of oxophenarsine hydrochloride.

The skin on the back of the fingers, the hands and the forearms shows a large number of solitary and grouped slightly raised small flat papular and larger raised verrucous lesions, from 3 to 6 mm. in diameter. There are similar lesions on the back of the feet and the legs, symmetrically distributed. The color of the lesions varies from flesh to gray and reddish brown. Some lesions show a slight central depression. On both thighs the papules appear violaceous, flat and shiny.

The skin of both the palms and the plantar aspect of the feet is dry, thickened and hyperkeratotic, with large raised yellowish callosities. The finger nails are dystrophic and thinned and show longitudinal striations. The face shows peculiar light yellowish and brownish irregularly outlined pigmentations and multiple milia.

The Wassermann and Kahn reactions of the blood were both 4 plus. The blood count showed 78 per cent hemoglobin, 4,000,000 red blood cells, 9,400 white blood cells, with 72 per cent polymorphonuclear leukocytes and 28 per cent lymphocytes.

Biopsy, reported by Dr. Kuznitzky, disclosed acanthosis, an increased granular layer, in the basal zones "clear cells" with nuclei concentric or wholly pushed to one side and empty or clear spaces surrounded by a somewhat thickened cell membrane, besides which there was normal pigment. The altered cells were scattered irregularly and could be seen especially in the basal layers, with none in the superficial portion of the acanthotic epidermis. The horny layer was closely adherent to the epidermis, in part lying loosely on its outer surface. In some places there was pronounced parakeratosis. The cutis showed no remarkable changes.

DISCUSSION

DR. FRED WISE: The clinical and histologic features correspond to those already described. The chief interest is with respect to the histology, which in this case shows the so-called basket weave forms of epidermal cells with the

nuclei pushed over to one side. Another interesting feature is the lack of a familial history.

DR. WILBERT SACHS: I believe that this microscopic description fits in fairly well with the diagnosis, except that the large cells should be on the surface. I should rather not use the term "basket cells" in this disease.

DR. MAURICE J. COSTELLO: I agree with the diagnosis.

DR. FRANK VERO: This patient shows one feature which I do not believe has been described in the reported cases—the keratosis of the hands and the feet. These changes appeared only a few years ago after an oophorectomy, and it is possible that the keratosis is in etiologic relationship with her early climacterium rather than with the genodermatosis.

Lupus Vulgaris Occurring in a Skin Graft. Presented by DR. LESLIE P. BARKER.

A. E., a German woman aged 68, is presented from St. Luke's Hospital with lupus vulgaris of the left side of the face, the nose and the left ear which has been present for the past fifty years. Thirty-five years ago the patient had a series of roentgen irradiations on the cheek. She was sent to the St. Luke's Surgical Clinic in 1938 because of the appearance of two tumors in the lupus vulgaris area of the left cheek. One had been present for two years and the other for five months.

On admission there was a patch of lupus vulgaris involving most of the left cheek, the entire nose, the left ear and, to a lesser extent, the neck. On the side of the cheek there were two lesions the size of a hazelnut consisting of crusted, granulomatous ulcerations with firmness at the margin. Biopsy proved these lesions to be prickle cell epitheliomas. In June both tumors were removed, together with a large section of the adjacent tuberculous skin. A pedicle graft was performed.

The patient states that lupus vulgaris lesions began to appear in the pedicle graft within two years after the operation, and other new lesions have appeared on the grafted skin since that time.

At the present time the nose, the left cheek, the left ear and the neck, especially beneath the chin, present a dry somewhat scaly reddish brown dermatosis with numerous typical apple-jelly nodules on diascopic pressure. The center of the lesion on the left cheek shows a palm-sized healed pedicle skin graft, the surface of which presents a picture similar to that of the face.

Repeated roentgenologic examination of the lungs has shown no evidence of tuberculosis. The general physical examination has revealed no abnormalities.

The patient has had various diets and ultraviolet light irradiation, and now refuses further local therapy.

DISCUSSION

DR. DAVID BLOOM: The recurrence of lupus vulgaris in the graft is not surprising, as general supportive treatment was not given in this case.

DR. EUGENE F. TRAUB: The lupus vulgaris was not entirely eradicated at the time the epithelioma was removed. The skin graft was placed in an active area of lupus vulgaris, and it is not surprising that it extended into the graft. While there is no doubt that surgical removal of lupus vulgaris, when carried out early, is the surest way to cure the disease, I am certain that late removal of extensive lupus vulgaris can be successful if it is done completely. A case was shown before this section with the most extensive lupus vulgaris on the buttocks and scalp and ten or fifteen other patches. Each of these areas was excised at Lenox Hill Hospital, with complete cure on long observation.

DR. MAURICE J. COSTELLO: This case brings out the fact that in surgical removal of tissue diseased by lupus vulgaris, the plastic surgeon should be instructed to excise wide of the clinical disease, because there are satellites of lupus nodules beyond the clinical involvement.

DR. E. WILLIAM ABRAMOWITZ: Twenty years ago I presented a girl, 12 years of age, who had the most frightful, ulcerated type of lupus vulgaris of the scalp, the face, the ears and the neck (ARCH. DERMAT. & SYPH. **14**:351 [Sept.] 1926). The lesions responded to gold and sodium thiosulfate. Three years later, although she still showed a few active lesions, an extensive plastic operation was performed at the Barnard Skin and Cancer Hospital, St. Louis, with excellent results. Unfortunately she died in 1943 of pulmonary tuberculosis. It is apparently safe to operate on the healed tuberculous lesions of the skin, or when the tuberculous process is quiescent.

DR. LESLIE P. BARKER: This patient was presented to show the rapidity with which lupus vulgaris may recur in a skin graft when the infected area has not been completely excised. The excision and the subsequent pedicle skin graft were not performed with the intention of removing all the infected skin, because the area was too extensive. The infection had involved the entire side of the face, the ear lobe and canal, as well as the lower eyelid. It was thought impossible to remove all this area, and so excision was confined to the two areas where the prickle-cell epitheliomas had developed.

Lichen Planus-Like Eruption from Quinacrine. Presented by DR. FRANK VERO.

M. R., a white Polish man aged 34, is presented from the Vanderbilt Clinic with a generalized eruption of ten months' duration. The patient was previously presented before the New York Dermatological Society on March 27, 1945.

DISCUSSION

DR. WILBERT SACHS: I had several biopsies performed on these patients, and the pathologic picture is similar to that of a receding lichen planus, which is often seen as the result of a drug. The pigment is melanin. There are many wandering connective tissue cells and some changes in the blood vessels. The microscopic findings are those of a lichen planus-like eruption due to some drug.

DR. LOUIS TULIPAN: Most of these cases have been showing the hypertrophic type of lichen planus. The question arises whether it is due to quinacrine, because in certain areas, as in Africa and Italy, where the men have also been receiving the drug, this eruption has not appeared. One patient whom I saw had an atrophic lichen planus on both extremities and hips. This man was a captain in the Medical Corps, and he showed the dull yellowish tinge of the skin that most of them have after taking quinacrine for a long time. The question comes up that since it is known that many drugs, such as quinine, are photosensitizers, the eruption may be due to exposure to sunlight. It is possible that these people may have the eruption because of photosensitivity produced by quinacrine. That may be why the eruption develops only in the South Pacific and not in other spheres. The sunlight, humidity and atmosphere may be different from that in Italy and other sections.

DR. DAVID BLOOM: The eruptions reported following ingestion of quinacrine are erythema nodosum, urticaria and dermatitis exfoliativa. These eruptions appear usually after a few days' administration of the drug. The lichen planus-like eruptions reported in numerous cases in the armed forces in the Pacific have occurred in men who have received the drug for several months.

DR. E. WILLIAM ABRAMOWITZ: The United Fruit Company used quinacrine and pamaquine naphthoate extensively, and reports were issued by the company showing that both these drugs, and particularly pamaquine naphthoate, were highly toxic (Twentieth Annual Report, Medical Department, United Fruit Company, 1931, p. 51). I don't recall any lichen planus-like eruption being mentioned. If you knew nothing about this patient, you would say that he was receiving arsenic, gold or some other heavy metal therapy. Quinacrine is an acridine derivative; these compounds, like acriflavine, are photosensitizing, and it is possible

that the sun's rays in New Guinea are of a wavelength in which photosensitization appears easily.

DR. FREDERICK REISS: I believe Dr. Abramowitz touched on the most important points in relation to quinacrine dermatitis. We had occasion to use quinacrine extensively in China, and hardly ever did we notice such an extensive dermatitis as in Dr. Vero's case. I wonder whether the cumulative effect could be responsible for this type of eruption. I don't know whether the wavelength of the sun's rays is different in New Guinea, but if the eruption is due to quinacrine it does not correspond with what we have observed in China.

DR. MAURICE J. COSTELLO: The first patient presented by Dr. Vero has been presented at every dermatologic society in New York city. I think that the patient's eruption has undergone practically complete involution. I saw a patient presented at Dr. Fox's office the other day, returned from the Pacific Theater—probably New Guinea—who had a different type of eruption. The lesions were infiltrated, violaceous, scaly and extremely pruritic, varying in size from that of a dime to that of a quarter. On the mucous membranes they were similar to those of lichen planus. When this case was presented at the Manhattan Dermatologic Society I suggested that it should be withheld until a release is obtained. I was under the impression that there were several cases of this type of eruption at Halloran General Hospital, but Lieutenant Sneid, who is here tonight, states that he has not observed any.

DR. DAVID BLOOM: The occurrence of numerous cases of lichen-planus-like eruption following ingestion of quinacrine is not surprising, in view of the experience obtained from the sulfonamide compounds. The reports of eruptions from quinacrine all describe the development of sensitivity to the drug after a few days of administration. Taking the drug for four or five months, as have this patient and probably most of the men in the Pacific, must lead to development of sensitivity eruptions in many cases.

DR. CHARLES WOLF: The point which I want to bring out is that sunlight, physically and spectroscopically, is the same the world over. When you get sunlight in any part of the world the effect of the light itself is the same, and so there must be other factors. In New Guinea, for instance, where this eruption has been observed, there may be climatic, nutritional and sanitary conditions which might have an adverse effect in conjunction with the administration of quinacrine. I should therefore not say that the wavelengths of sunlight have anything to do with it. It may be a factor, but it is not a primary one.

DR. FRANK VERO: When we first saw this patient, we thought of the cases of dermatitis medicamentosa which we used to see after the administration of gold or arsenic. When we found that he had been taking large amounts of quinacrine we thought of the possibility that we were dealing with a hypersensitivity to quinacrine. The patient says that the cutaneous disorder began with a more or less eczematoid eruption with severe itching and oozing. The patient is still ill; he states that he becomes dizzy when he is in the sunlight and has bloody stools. The case has not yet been fully studied.

Dermatitis Medicamentosa (Quinacrine?). Presented by DR. FRANK VERO.

K. J., a man aged 27, born in the United States, is presented from the Polyclinic Medical School and Hospital with an eruption on the fingers, the hands, the arms, the legs and the thighs of fifteen months' duration. The patient was first seen on March 29 complaining of a persistent rash and scar formation in the mentioned locations. He stated that prior to entering the Army in 1942 he was free from any cutaneous eruption. During his basic training he suffered from a pyogenic infection on his hands and feet. From May 1943 to June 1944 he took quinacrine, first 14, then 10 tablets weekly. In January he broke out with a rash, first on his feet and later on the arms and other areas. His skin became red and raw, with peeling, and he had intensive itching. Since July he has been hospitalized in various Army hospitals, and while there he received twenty injections of liver

extract and some local medication. He believes that the dermatologist diagnosed the eruption as lichen planus. He was discharged from the Army in November.

In the aforementioned locations, but chiefly on the backs of the fingers and hands, there are irregularly defined, reddened and infiltrated patches, some showing atrophy in the center. These atrophic lesions are more pronounced in already healed areas on the neck, the arms, the popliteal regions and the feet. Some appear round or oval in shape, others are irregularly defined and slightly pigmented. The skin above the edges of the heels is thickened and hyperkeratotic. The scalp is dry and scaly. On the chest and the mons pubis a few reddened, seborrheic and scaly patches are seen.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: The lesion on the arm looks like erythema nodosum.

A Case for Diagnosis (Dermatitis Artefacta? Tertiary Syphilis?). Presented by DR. LESLIE P. BARKER.

R. K., a woman aged 60, was first seen at St. Luke's Hospital in October 1944. On the lower third of the legs she had recurring ulcers that followed an injury incurred six years before. While some of the lesions had partially healed, others appeared. The patient has diabetes. She denies applying any caustics to the area.

The Wassermann, Mazzini and Kahn reactions have been repeatedly negative. The blood sugar on admission was 313 mg. and cholesterol 196 mg. per hundred cubic centimeters. The patient has been on a low carbohydrate diet, and the blood sugar is now 160 mg.

On both legs near the ankles, especially on the anterior and lateral surfaces, are a series of oval and somewhat linear ulcerations and scars, varying in size from that of a half dollar to ½ by 1½ inches (1.27 cm. by 3.81 cm.). Many of the active lesions are almost linear, and they are arranged in a serpiginate grouping suggesting superficial cutaneous gummas. The base of the active ulcers is necrotic and lacks hyperpigmentation at the margin.

The hemoglobin was 70 per cent, red blood cells 3,200,000, polymorphonuclear leukocytes 74 per cent, lymphocytes 24 per cent, and eosinophils 2 per cent. No sickling of the cells was seen.

In spite of the negative Wassermann reaction, the patient was given injections of a preparation of bismuth and potassium iodide by mouth, and the lesions healed rapidly at first; however, new lesions have continued to appear. However, at the time the lesions healed so rapidly the patient was wearing an occlusion dressing.

DISCUSSION

DR. FRED WISE: The eruption does not give me the impression of a self-inflicted or artificial one. It is desirable to exclude syphilis and tuberculosis.

DR. LOUIS TULIPAN: I think the scars present the bizarre appearance seen in dermatitis factitia. Many are linear and some seem to be broken off. This is not the type of scar seen in tuberculosis. One sees a particular type of keloidal scar which is almost recognizable even though the tuberculous lesion has been healed for many years. It certainly is not the scar of syphilis. There are no superficial thin or wrinkled atrophic scars. I still maintain that in tertiary syphilis one does get unilateral lesions and that bilateral and symmetric ones are rare. There is no arciform configuration of the original lesion. If these lesions were on the upper third of the leg I should say that it might be syphilitic, but this woman also has diabetes, and when persons with diabetes get any type of infection the lesions are apt to be exaggerated. That may account for the type of lesions the patient presents. I cannot see them as syphilitic or tuberculous scars.

DR. CHARLES LERNER: It is well known that in arteriosclerosis as well as in diabetes trophic ulcers are not uncommon. This woman is thin, with hardly any flesh over the tibia, and the diabetes is still severe, even though her blood sugar has been reduced to 160 mg. per hundred cubic centimeters. Even with a positive

tuberculin reaction I should hesitate to make a diagnosis of tuberculosis. The severe diabetes of long duration should make us suspect trophic ulcers of diabetic and arteriosclerotic origin.

DR. LESLIE P. BARKER: I have not performed a biopsy in this case because the patient has absolutely refused to permit it, and I have not urged too much because she still has rather severe uncontrolled diabetes, for which she has refused to be hospitalized. I think that the patient has the mental makeup which might induce her to produce such lesions. She likes to have the ulcers examined and is rather flattered when she receives particular attention from the physicians.

The eruption first began on the leg after trauma. I have thought that the lesions were traumatic ulcers because of their bizarre shape and because some had a definite linear appearance. The necrotic base present on many of the lesions is certainly not the type seen in syphilis, nor do the lesions have the ragged, undermined edges and the superficial base so frequently seen in ulcers due to tuberculosis. I hope that as soon as the patient's diabetes is controlled she will consent to a biopsy.

Von Recklinghausen's Disease in Mother and Child. Presented by DR. LESLIE P. BARKER.

E. B., a girl aged 4, has had a hairy nevus on the back since birth. The mother says that the lesion has increased in size during the past year. The patient has had some brown spots on the body that were noticed only shortly before her admission to the hospital, although the mother said that they may have been present for a longer period of time. The mother has had von Recklinghausen's disease since the age of 18. She has two other children, a boy aged 11 and a girl aged 3, but no other members of the family have similar lesions.

On the back there is a lesion about 8 by 9 cm. in size. It is soft, raised, dark brown and hairy. There are also a moderate number of café-au-lait spots scattered over the trunk and extremities. There are no other physical abnormalities.

DISCUSSION

DR. CHARLES WOLF: These cases are interesting from the standpoint of genetics. It might be profitable to study the child for hamartomas of various organs. The condition is also associated with tuberous sclerosis. I should suggest, if it is possible, that there be roentgenologic examinations of the adrenal regions and the lungs and retrograde cystoscopy. Such cases are concealed for many years until an injury occurs, when a severe hemorrhage from one organ or another appears. Hamartomas are associated with von Recklinghausen's disease.

DR. DAVID BLOOM: As far as I know, the tumors consisting of embryonal muscle, the rhabdomyomas, found particularly in the heart and the kidneys, are supposed to be common in tuberous sclerosis.

DR. CHARLES WOLF: Von Recklinghausen's disease may be associated with all of the other manifestations of tuberous sclerosis, but that does not signify that von Recklinghausen's disease cannot exist at the same time as other conditions. There is a complete and extensive report by Dr. Moolten on hamartomas, and I would suggest its perusal.

MANHATTAN DERMATOLOGIC SOCIETY

James M. Lewis, M.D., *President*

Wilbert Sachs, M.D., *Secretary*

April 10, 1945

A Case for Diagnosis (Aphthous Stomatitis? Behcet's Syndrome?). Presented by DR. WILBERT SACHS.

L. A., a white man aged 58, has had recurrent attacks of ulcerations of the mouth for the past seventeen years. These involved the lips, the cheeks, the tongue,

the pharynx and the larynx. The patient also has had similar lesions on the penis and the scrotum and about the anus. There have been no ocular lesions. One of the laryngeal ulcers was removed, and the histologic report was "ulcer of the epiglottis."

At present there are ulcers on the lips, the tongue and the pharynx. These "burn" and are painful. The lesions begin as small vesicles and then ulcerate, becoming larger until they reach 1 to 1.5 cm. in diameter. There are no lesions in the genital area.

Wassermann and Kahn reactions of the blood were negative. Urinalysis, a complete blood examination and a roentgenogram of the chest revealed no abnormality.

Many different local applications and mouth washes have been used without benefit. Sulfadiazine, vitamin B complex, injections of liver and oxophenarsine hydrochloride gave little relief. Roentgen therapy and repeated vaccination were also without benefit.

DISCUSSION

DR. DAVID BLOOM: In Behcet's syndrome Bacillus crassus is supposed to be present. Did the presenter find any in this case?

DR. HERMAN SHARLIT: If nothing else is found, I think that many of these cases should be studied from the psychosomatic aspect.

DR. WILBERT SACHS: I have not treated this patient, and saw him only once before. He has been treated for sixteen years in Philadelphia by most of the dermatologists there. I thought of an aphthous stomatitis because the lesions begin as vesicles. However, they become too large for that disease. The patient has had lesions on the genitals but never had ocular signs or symptoms, and yet the rest of the picture fits in with Behcet's syndrome. Many cultures have been made but nothing conclusive found. Treatment seems of little help. The eruption has been present for seventeen years, but he was free of lesions six years ago while ill with pneumonia.

A Case for Diagnosis (Pemphigus Vulgaris? Erythema Multiforme Bullosum? Dermatitis Herpetiformis?). Presented by DR. THOMAS N. GRAHAM.

D. M., a white woman aged 75, born in Germany, was first seen at the Knickerbocker Hospital on March 15, 1945, complaining of an eruption of eight months' duration involving the upper extremities and the trunk. The patient states that the eruption was dry and scaly until two weeks previously, when a number of "blisters" appeared on the right forearm. There is no history of drug ingestion. During the previous six months the patient lost 20 pounds (9.1 Kg.). There has been little pruritus.

There are erythematous scaly crusted patches on both upper extremities and on the trunk. Superimposed on one of these patches involving the right forearm is a group of bullae. During three weeks of observation there have developed a number of discrete flaccid bullae arising from normal-looking skin on the trunk, the face and the extremities, and some of these became hemorrhagic. There have been no lesions on the mucous membranes. Nikolsky's sign is not present.

Fowler's solution was prescribed in small doses, but during the time it was being taken the eruption became more pronounced.

The Wassermann reaction of the blood was negative. The urine was normal except for a faint trace of albumin. The blood count showed moderate anemia, with 16 per cent eosinophils.

DISCUSSION

DR. WILBERT SACHS: Clinically I should favor the diagnosis of pemphigus. Microscopically, pemphigus is more probable, for the following reasons: The lesion is subepidermic and bullous, with no evidence of dermatitis herpetiformis.

There is too much inflammatory reaction, and the process is too deep. The fact that the papillary bodies are present shows that the lesion developed rapidly.

DR. GEORGE C. ANDREWS: Isn't it unusual to get a case of pemphigus so rapidly severe in a Christian? Most observers say that the disease is worse in the Jewish race.

DR. FRED WISE: In previous years, about 95 per cent of all cases of pemphigus vulgaris occurred, in my experience, in Jewish patients. In the past few years, the proportion between Jews and Gentiles seems to approach a ratio of about 60 to 40.

DR. ISADORE ROSEN: I should not be too hasty in making a final diagnosis of pemphigus in this patient, but should be more inclined to the diagnosis of hemorrhagic bullous erythema multiforme. The large hemorrhagic lesions with an inflammatory base suggest the latter diagnosis. I realize that the patient is ill, but we do see patients with erythema multiforme who are very toxic.

DR. GIRSCH D. ASTRACHAN: I fully agree with Dr. Rosen. This case does not impress me as being one of pemphigus vulgaris. The absence of the Nikolsky sign and the fact that the lesions are situated on an erythematous base make me feel that we are dealing with a probable case of erythema multiforme. As for the question of the predominance of Jews among patients with pemphigus, I have observed several cases of pemphigus in non-Jews. As far as therapy is concerned, I should suggest blood transfusions, regardless of whether the patient is suffering from erythema multiforme or pemphigus.

DR. WILBERT SACHS: In those cases in which the bullous lesion is subepidermic, the Nikolsky sign is usually missing.

DR. MIHRAN B. PAROUNAGIAN: The bullous lesions observed in this woman spring from perfectly healthy skin, which does not speak in favor of erythema multiforme bullosum to my mind. I am rather inclined to the diagnosis of pemphigus vulgaris. I think that Dr. Wise is correct in regard to the racial question. My impression for some time was that the disease was more prevalent among Jews, but that opinion has been somewhat modified.

DR. DAVID BLOOM: I favor the diagnosis of erythema multiforme bullosum. It seems to me that the absence of lesions in the mouth in such an extensive eruption may be used also as a point against the diagnosis of pemphigus.

DR. MAX SCHEER: We have a patient at Mount Sinai Hospital with extensive, typical pemphigus vulgaris who has so far never had oral lesions.

DR. SAMUEL B. PECK: Did the patient have any conjunctival lesions?

DR. MAURICE J. COSTELLO: I think that Dr. Andrews' point is that even though the patient has an extensive eruption, she does not show the debility one would expect in pemphigus vulgaris, nor has she any oral lesions. At Bellevue Hospital, where we see a relatively large number of patients suffering from pemphigus vulgaris, it is my impression that a conservative figure would be that 70 per cent of patients with pemphigus are of the Jewish race. The nationality of the patient may be listed as German, Hungarian, etc., because he happened to be born in one of these countries, rather than as Jewish, and I think that this accounts for the discrepancy.

DR. E. WILLIAM ABRAMOWITZ: I agree with those who believe that the patient has pemphigus. The mucous membrane of the nose is involved. In the bullous type of erythema multiforme fever and other constitutional symptoms are apt to be present. This may occur also in pemphigus, but in the acute septic type or in the terminal stage of chronic pemphigus.

DR. THOMAS N. GRAHAM: The confusing feature of this case is the fact that the patient had an eczematous eruption preceding the bullous lesions. A number of the bullae which have appeared during our period of observation have been surrounded by normal-looking skin. This feature strongly suggests a diagnosis of pemphigus vulgaris.

Lichenoid Sarcoid. Presented by DR. JACK WOLF.

M. R., a woman aged 32, is presented from the dermatologic clinic of the Mount Sinai Hospital with an eruption of six months' duration. The first lesions appeared on the chest, and gradually new lesions appeared on the back and on the front of the neck.

The patient presents two types of lesions: flat lichenoid spots and lichenoid papules. The lichenoid spots, flat, shiny and in some instances scaly, rounded and oval, varying in diameter from 0.5 to 2 cm., are located on the upper part of the chest and the anterior aspect of the neck. One lesion is present on the outer portion of the arm, below the site of vaccination. There are seven such lesions in all, and on palpation they feel thickened. One lesion is somewhat depressed in the center. On the back of the neck is seen a pinhead-sized and somewhat larger, shiny, elevated, papular type of lesion, which is fairly profuse.

Histologic examination of tissue removed from both types of lesions revealed a similar pathologic picture, consisting of epithelioid tubercles with giant cells containing asteroid bodies.

A roentgenogram of the hands showed no abnormality of the bones. Roentgenologic examination of the chest showed slightly enlarged pulmonary markings, but no other abnormality. An electrocardiogram showed regular sinus rhythm with slight sinus arrhythmia. There was no abnormality to indicate myocardial involvement.

The blood cholesterol was 300 mg. per hundred cubic centimeters, cholesterol esters, 200 mg. The Wassermann reaction of the blood was negative, and the urine revealed no abnormal findings. The blood count showed 4,130,000 red blood cells, 82 per cent hemoglobin and 5,700 white blood cells, with segmented polymorphonuclear leukocytes 67 per cent, nonsegmented 6 per cent, lymphocytes 19 per cent, monocytes 4 per cent and eosinophils 4 per cent.

Tuberculin tests elicited positive reactions in dilutions of 1:100,000, 1:10,000 and 1:5,000.

DISCUSSION

DR. SAMUEL B. PECK: I think that the histologic picture confirms the diagnosis. This type of sarcoid is relatively rare as compared with the usual form.

DR. MAX SCHEER: Asteroid bodies have been found in various conditions, but never in sarcoid. This is the first case in which Dr. Klemperer has found asteroid bodies in sarcoid; he is uncertain as to what they are. They may be some form of crystallized lipoids.

Radiodermatitis of the Chest. Presented by DR. FRED WISE.

K. M., a woman aged 54, registered at the Skin and Cancer Unit on April 17, 1944, complaining of pain and redness of the chest. She received twelve roentgen ray exposures, from 1925 to 1927 at intervals of once in two months, for a thyroid disorder. A red spot appeared on each side of the upper part of the chest at about the seventh treatment. Five additional treatments were subsequently given, and the spots then became a deeper red. In 1930, three years after the last exposure to roentgen rays, the lesions became ulcerated with a malodorous discharge of blood and pus, accompanied by severe pain. These ulcers healed within two months following applications of wet dressings and cod liver oil salve. In 1937 the affected areas again became ulcerated, but only in spots. With these ulcerations there appeared telangiectatic areas. The lesions have remained unchanged for the past eight years. The pain has been intermittent and continual during day and night. There is also itching with a pricking sensation.

In 1932 the left tube and ovary were removed because of uterine bleeding during the menopause. In 1935 she was operated on for a thyroid disease.

On the upper part of both sides of the sternum, extending from above the supraclavicular regions downward for an area of 7.5 cm. are two almost symmetric, ovoid, fairly well defined lesions, the left being somewhat larger. There is a rough

raised growth the size of a large pea in the right lesion with some ulceration and several growths the size of a match head in the left patch. The patches are shiny, ivory-white and intermingled with purplish red branchings which are larger in the center but finer at the periphery. The surface is irregular because of the presence of some depressed and elevated areas. The skin has lost its elasticity and is taut and scleroderma-like. All the soft tissues are bound together and move only with difficulty on the structures underneath. There are no palpable cervical or axillary lymph nodes. The breasts are normal except for an oblong, raised nevoid growth on the right breast which has many pedunculated growths on its surface. There is a fine, linear scar at both sides of the neck. The telangiectatic capillaries do not fade on diascopic pressure.

The Wassermann and Kahn reactions of the blood were negative, and the urine was normal. The hemogram showed a red cell count of 3,460,100 and a leukocyte count of 3,900 per cubic millimeter. The hemoglobin content was 11.8 Gm. per hundred cubic centimeters of blood, or 71 per cent, with a color index of 1.04 per cent. The differential count was normal.

The patient was referred for plastic repair.

DISCUSSION

DR. HERMAN SHARLIT: If the tissue doesn't break down and form an ulcer, I should wait.

DR. FRED WISE: The routine treatment in cases of this kind at Memorial Hospital is radical excision, for fear of later malignancy.

DR. ANTHONY C. CIPOLLARO: I do not think that complete excision is essential in the case presented tonight. I believe that excision and plastic repair is the best method of treating radiation ulcers. The evidence that estrogenic substances applied in the form of an ointment are valuable in the treatment of radiodermatitis is not convincing. I certainly do not recommend this form of treatment at the present time.

DR. MAX SCHEER: I think there is only one effective therapy—excision and skin graft.

DR. FRED WISE: I appreciate the significance of Dr. Cipollaro's remarks, but every patient must be treated as an individual. The patient said, "If only I could get rid of this, I would be happy for the rest of my life." She breaks into tears when she speaks of her eruption. I would and did recommend plastic surgery.

A Case for Diagnosis (Dermatitis Herpetiformis?). Presented by DR. ISADORE ROSEN.

M. F., a girl aged 15, registered at the Skin and Cancer Unit on March 19, 1945, complaining of an eruption of nine months' duration.

On the back of the left hand there is a round, well defined, erythematovesicular plaque 3 inches (7.62 cm.) in diameter. On the right side of the chin and on the right cheek there are a few papulovesicular plaques and rings. The patient complains of moderate itching.

The past and family histories were negative. The blood and differential counts gave normal figures. Patch tests with potassium iodide and potassium bromide gave reactions of 2 plus.

DISCUSSION

DR. WILBERT SACHS: I should be unable to make a diagnosis of dermatitis herpetiformis at this time. However, one can differentiate microscopically between nummular eczema and dermatitis herpetiformis, and I should therefore suggest a biopsy.

DR. GEORGE C. ANDREWS: This girl was a private patient of mine for eight months. I tried everything in the way of treatment. I did not perform a biopsy because the lesions were mostly on the face and knuckles, and I did not think that the latter would show anything significant because they were apparently simple

inflammatory lesions. The patient had lesions on the legs and knees when she was first seen, but these cleared up. The other lesions improved a little under roentgen therapy, but she has had all the radiation that she should receive. Cases of nummular eczema usually respond more quickly to roentgen rays. A great many cultures have been made and various kinds of therapy tried, and nothing seems to make any difference. I think that it is an unusual and interesting case, and I hope that Dr. Rosen will follow it and report later. I have the impression that it might be a virus disease. The patient is not bright, and the question of drug eruption was always in my mind, in spite of repeated denials. We have definitely ruled out contact dermatitis by extensive studies.

DR. HERMAN SHARLIT: A diagnosis based on patch tests with the halogens never struck me as meaning anything, but recently Zondek reported a series of patients who were allergic to their own endocrine secretions. Maybe a series of these tests will uncover that form of reaction. The patient's own thyroid might be responsible.

DR. SAMUEL B. PECK: This patient presents the type of syndrome which Jadassohn fitted into his enlarged conception of Duhring's disease. I have always had great difficulty in making such a diagnosis unless the reaction to the potassium iodide test was positive. In this regard I should like to call your attention to a group of cases which clinically resemble classic Duhring's disease in that they show a positive reaction to the potassium iodide test and the typical bullous lesions. However, in addition these patients have a basal metabolic rate of minus 20 per cent, or less, and a pronounced local reaction to toxoid staphylococci. Such patients respond well to thyroid given by mouth and to injections of the toxoid. Whether this group of cases represents true Duhring's disease or a separate entity should be investigated.

DR. DAVID BLOOM: While this patient gives a positive reaction to iodide and bromide ointment, another patient at the clinic with a similar but more extensive eruption had a negative reaction to a patch test.

DR. ISADORE ROSEN: I was glad to hear the remarks made by Dr. Andrews and Dr. Peck. Patients with so-called nummular eczema have been recognized as suffering from a form of dermatitis herpetiformis. The late Dr. Herman Goldenberg twenty-five or more years ago impressed on me that clinical feature.

Lymphoblastoma. Presented by DR. MAX SCHEER.

J. R., a man aged 58, is presented from the Skin and Cancer Unit with an eruption of one year's duration which began on the face and then spread gradually to the torso and the upper extremities. The patient's health has always been good except for disease of the gallbladder, from which he has suffered for fifteen years or more.

On examination the patient presents red indurated nodular lesions, profuse on the right side of the neck, the shoulders, the back, the arms, the face and the region of the sternal notch. The lesions vary in size from that of a small pea to that of a hazelnut, with a central semiglobular bulge and induration which gradually melts into the normal surrounding skin. The epidermis cannot be raised, and the lesions are not attached to the subcutaneous tissues.

Biopsy showed that throughout the corium there were rather large fairly well defined cellular masses. Smaller masses could be noted between the larger ones. These masses were composed of lymphocytes containing one or more nucleoli in a hyperchromatic intranuclear network. Scattered mitoses were visible and varied somewhat in size and shape. The diagnosis was lymphoblastoma.

Two blood counts were made several days apart. They showed 4,720,000 red blood cells, 16.2 Gm. hemoglobin (97 per cent) and a color index of 1.03. The first blood count showed 5,950 leukocytes, with 60 per cent neutrophils, 10 per cent eosinophils, 10 per cent monocytes, 19 per cent lymphocytes and 1 per cent band forms. At the time of the second blood count there were 5,400 leukocytes, with

54 per cent neutrophils, 8 per cent eosinophils, 8 per cent monocytes, 28 per cent lymphocytes and 2 per cent band forms. The opinion of the hematologist was that blood dyscrasia could be excluded.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: The nodular lesions which comprise most of the eruption, and the shotty lymph glands in the axillary region, favor the diagnosis of possible aleukemic leukemia.

DR. WILBERT SACHS: In lymphatic leukemia I believe that the lesions should show leukemic nodules. Further microscopic studies are necessary for a final diagnosis.

DR. FRED WISE: I should like to hear a report of a sternal puncture and a study of the lymph nodes.

DR. GEORGE M. LEWIS: I think that from a clinical standpoint Spiegler-Fendt sarcoid might be considered, although the histologic structure does not agree.

DR. MAX SCHEER: I purposely presented this patient under the generic title of lymphoblastoma because I could not definitely prove leukemia or mycosis fungoides, or any one of the individual diseases coming in that group.

Recurrent Erythema Iris. Presented by DR. DAVID BLOOM.

L. G., a man aged 41, came to the Skin and Cancer Unit complaining of a recurrent eruption of eight years' duration.

On the anterior and posterior aspects of the legs and the thighs and on the anterior aspects of the wrists there are several round lesions varying from 1 to 3 inches (2.54 to 7.62 cm.) in diameter, with a raised erythematous border and a clearing scaly or seemingly vesicular center. Some of the lesions are of one week's and others of three weeks' duration. The eruption is moderately pruritic.

General examination of the patient revealed no abnormalities. The family and past histories were essentially negative. There was no history of drug ingestion.

The Wassermann reaction of the blood was negative. Urinalysis, blood cell and differential count and determination of the sedimentation rate gave normal findings. Mycologic examination did not reveal any fungi in the lesions.

Four injections of bismuth subsalicylate were without any benefit.

A Case for Diagnosis (Familial Benign Chronic Pemphigus? Erythema Annulare Centrifugum?). Presented by DR. E. W. ABRAMOWITZ.

D. T., a man, registered at the Skin and Cancer Clinic on Aug. 10, 1933, at the age of 20, complaining of a cutaneous disorder of seven weeks' duration. The eruption was diagnosed as dermatitis solaris and was described as circular erythematous and vesicular lesions. Since then the patient visited the clinic from time to time as he suffered from the recurrent eruption, which was located on the back of the neck, the upper part of the back and the chest. The eruption would begin in late summer and disappear in winter.

At the present time the patient shows a semicircular erythematous crusted lesion on the chest, and in the right infraclavicular area a few erythematous crusted lesions arranged in the form of an arch. The larger lesion has been present for six weeks, while the smaller lesion is of only three days' duration. There are present also a few slightly hyperpigmented plaques in which the previous lesions were located.

The patient states that each lesion begins as a small crusted papule which increases in size, assumes circinate shape, advances peripherally and heals centrally, leaving an erythematous skin.

The patient also has right gynecomastia which has been present for the past five years, and for which he has received injections of testosterone.

One brother died of leukemia, and another of hypertension. No member of the family has had any cutaneous disease.

The Wassermann reaction of the blood was negative. Urinalysis and a differential blood count gave normal findings. The biopsy report was that of a possible familial benign chronic pemphigus (Hailey-Hailey).

DISCUSSION

DR. DAVID BLOOM: The diagnosis of familial pemphigus rests on the histologic changes. The absence of familial occurrence does not speak against this diagnosis. Clinically, the diagnosis of erythema annulare centrifugum would be justified.

DR. FRED WISE: I am inclined to favor a diagnosis of benign pemphigus.

DR. WILBERT SACHS: I believe that this disease is a type of epidermolysis bullosa.

DR. GEORGE C. ANDREWS: I think that it is rather a typical case of benign chronic pemphigus. Its coexistence with gynecomastia supports the concept that Hailey-Hailey's disease is a nevoid condition, which I think is a tenable thesis. The presence of another congenital anomaly along with the Hailey-Hailey syndrome is worth noting.

DR. GIRSCH D. ASTRACHAN: The elevated, hard border of the involved area on the chest and its annular configuration speak in favor of erythema annulare centrifugum.

DR. MAX SCHEER: I do not think that this is an erythema chronicum migrans. The border of the lesion is crusted and probably vesicular, and in erythema chronicum migrans the lesions are definitely infiltrated, raised and dry. I believe that it is chronic benign pemphigus.

DR. SAMUEL M. PECK: It has rarely been pointed out in discussing chronic benign pemphigus that the histologic and clinical features of this diseases resemble phases of Darier's disease. The edema was a striking feature of the histologic structure of Darier's disease in the numerous biopsies reported by myself and my associates. (Vitamin A Studies in Cases of Keratosis Follicularis [Darier's Disease], ARCH DERMAT. & SYPH, **48**:17-31 [July] 1943.) One of the reported cases was especially striking in this regard. Excessive doses of vitamin A in one instance so increased the edematous element that there was a notable resemblance histologically to chronic benign pemphigus. I agree with Dr. Sachs that a diagnosis of keratosis follicularis can be made histologically even from a minor lesion. I think that this case should be studied as to vitamin A levels in the blood. On clinical grounds alone, my diagnosis is erythema annulare centrifugum.

DR. E. W. ABRAMOWITZ: When I saw this patient for the first time there was no element of wetness, but a dry, elevated, marginated, erythematous lesion. My original diagnosis was erythema gyratum or possibly a localized type of dermatitis herpetiformis. The biopsy is fairly typical of the Hailey-Hailey syndrome.

A Case for Diagnosis (Macular Lesions of Legs and Nodular Lesions of Feet). Presented by DR. MAURICE J. COSTELLO.

J. O., a man aged 54, is presented from Bellevue Hospital with an eruption on the lower extremities of fifteen months' duration. The patient was admitted to the hospital on March 20. He stated that about fifteen months ago "reddish spots" developed on both feet and legs. Since then these purpuric lesions have had a tendency to recur, almost daily, and especially in the afternoon. About ten months ago several nodules developed on both ankles, and these have continued to enlarge. Two months ago he also noticed the same type of lesion on the anterior aspect of both knees. The patient states that since these nodules appeared the purpuric lesions have become worse.

There are multiple discrete, erythematous macular lesions on the surfaces of both legs. In addition there are multiple pale pink sharply circumscribed smooth-topped firm painless nodules, the size of a hazelnut and larger, involving the lateral

aspect of the left ankle and the posterior aspect of both ankles. Some nodules are also present on the anterior surface of the knees. Along the lateral border of the right foot are seen and felt two firm smooth elevations, not as characteristic as the others.

Varicosities of both legs and also some brownish pigmentation are noted.

Other physical findings are normal except for bilateral chronic dacryocystitis and cervical adenitis. The ophthalmologic examination revealed no abnormality.

The tuberculin reaction was mildly positive in a dilution of 1:100,000, and strongly positive, with fever, when the dilution used was 1:10,000.

The urine was normal. The blood count showed 3,590,000 red blood cells and 14,750 white blood cells, with 64 per cent polymorphonuclear leukocytes, 30 per cents lymphocytes, 2 per cent basophils and 4 per cent eosinophils. The Wassermann reaction of the blood was negative. Blood cholesterol was 182 mg. and cholesterol esters 100 mg.

DISCUSSION

DR. JACK WOLF: Clinically the lesions looked much like xanthoma or possibly fibroxanthoma. The diagnosis will have to rest on histologic examination.

DR. DAVID BLOOM: The absence of high blood cholesterol speaks against the diagnosis of xanthoma tuberosum, which is suggested by the lesions on the extremities. The lesion on the palm suggests granuloma annulare.

DR. GEORGE C. ANDREWS: One must also consider Kaposi's hemorrhagic sarcoma, but I am in favor of the diagnosis of xanthoma.

DR. GEORGE M. LEWIS: The lesions over the tendon were suggestive of xanthoma.

DR. MAURICE J. COSTELLO: There is no suggestion in daylight of a yellowish tint. We favored a diagnosis of erythema elevatum diutinum.

Psoriasis in a Full-Blooded Negro. Presented by DR. MAURICE J. COSTELLO.

S. O., a 37 year old Negro, was admitted to Bellevue Hospital on March 14, 1945. He stated that about ten years ago "dry patches" developed on both legs, and that these have itched severely. The eruption was confined to these areas until two years ago, at which time other patches on his thighs appeared. Other lesions gradually developed which spread upward to involve the rest of his body. He has complained of constant itching and dryness of these areas.

The patient contracted gonorrhea in 1923 and syphilis in the same year, for which he has received many intramuscular and intravenous injections. The patient also has epilepsy.

The patient shows many gyrate and arcuate configurations, together with variously sized isolated patches, involving the face, the neck, the arms, the chest (especially the lateral aspects), the back, the right buttock, the thighs and the legs. The lesions on the chest have a border with an erythematous base and a heavy accumulation of whitish silvery scale. On the face and the nuchal region are seen sharply defined erythematous borders. Many small scaly papular lesions are present on the chest. The legs show large diffuse plaques with many scales.

The urine and the blood pictures were normal. Two Wassermann tests of the blood elicited negative reactions.

The histologic picture was reported to be compatible with a diagnosis of psoriasis vulgaris.

DISCUSSION

DR. MIHRAN B. PAROUNAGIAN: I agree with the diagnosis of psoriasis in this case, though I believe that the lesions are modified by some other disease, possibly tuberculosis. As we all know, psoriasis in a full-blooded Negro is extremely rare.

DR. MAURICE J. COSTELLO: We have given this patient low voltage roentgen therapy several times in doses of 200 r without beneficial effect on the lesions.

Delayed Reversal of the Serologic Reaction of the Blood in a Patient with Early Syphilis Treated by the Eagle and Hogan Method. Presented by DR. GIRSCH D. ASTRACHAN.

M. F., a man aged 44, born in Puerto Rico, was admitted to Metropolitan Hospital on May 4, 1944, with the diagnosis of secondary syphilis. He was treated by the method of Eagle and Hogan, and received thirty injections of dichlorophenarsine hydrochloride and twelve of a preparation of bismuth. The injections of dichlorophenarsine hydrochloride were given three times weekly, and the total amount administered was 2,280 mg., or 30 mg. per kilogram of weight. The treatment was completed on July 21. The icterus index and the urine were examined weekly and found to be normal. The spinal fluid was examined on September 25 and found normal. The changes in the serologic reaction of the blood were as follows: At the time of the patient's admission and on June 1 the Wassermann reaction of the blood was 4 plus. On June 23 the Wassermann reaction was 3 plus and the Kahn reaction 2 plus. On July 14 the Wassermann reaction was 4 plus and the Kahn reaction 4 plus. The Kahn reaction was 4 plus on July 21, 2 plus on September 6, 2 plus on September 25, 2 plus on October 4, 1 plus on October 16 and 1 plus on October 30. On November 27 the Wassermann reaction was 1 plus and the Kahn reaction 2 plus. On Jan. 10, 1945, the Wassermann reaction was 1 plus and the Kahn reaction was 1 plus. On January 26 the Wassermann reaction was negative and the Kahn reaction was plus minus, and on February 5, February 19 and March 2 the Wassermann and Kahn reactions were negative.

DISCUSSION

DR. MAURICE J. COSTELLO: I think that such a delay would be unusual even when penicillin has been administered. Most patients show negative Wassermann reactions of the blood after four months.

DR. DAVID BLOOM: A similar delayed reversal in serologic reaction is frequently seen in the spinal fluid. According to Dattner, examination of the spinal fluid is useless before six months have elapsed after treatment has been given to a patient with neurosyphilis, for it is at least six months before changes in the spinal fluid take place.

DR. GIRSCH D. ASTRACHAN: Cases of the kind which I have presented do occur, but not frequently. In a large majority (63 per cent) of 4,823 cases observed by H. Eagle (*J. A. M. A.*, **126**:538 [Oct. 28] 1944), a reversal of the serologic reaction to negative occurred no later than two to three months after treatment was completed. In about 8 per cent of the cases, reversal occurred eight to twelve months after the treatment was completed.

Book Reviews

Histologic Changes of the Skin in Favus and Trichophytosis in the Process of Roentgen Epilation. By W. Arutunoff, M.D., Ivanovsky State Medical Institute, U. S. S. R. Price, not given. Pp. 80, with 18 illustrations. Ivanovsky State Medical Institute, 1945.

On the basis of numerous biopsies performed on patients with favus, trichophytosis and microsporosis of the scalp before and after roentgen ray epilation the author came to the following conclusions.

1. No changes are noticeable in the skin during the first four to six days after a single epilating dose of roentgen rays. Beginning with the seventh day the epidermis becomes thinner; hair follicles show degenerative changes, and the inflammation in the corium due to fungous infection begins to subside.

2. All these signs of inhibition of tissue processes increase up to approximately the twenty-second day and lead to atrophy of the hair follicles and falling out of the hair.

3. Blood vessels are dilated, and their endothelium swells.

4. An epilating dose of roentgen rays does not leave any permanent changes in the tissues. The signs of regeneration clearly noticeable in the hair follicles become manifest on the twenty-second day in trichophytosis and a few days later in favus. Sixty days after roentgen ray epilation the tissues return to normal.

News and Comment

GENERAL NEWS

A Tribute to the Memory of Dr. William Allen Pusey.—On October 18 the first annual William Allen Pusey dinner was held by the Chicago Dermatological Society. Speeches were made by Dr. Brown Pusey, a brother of Dr. William Allen Pusey, and by Dr. Edward A. Oliver, Dr. Francis E. Senear, Dr. Leonard F. Weber and Dr. Herbert Rattner.

DEATHS

Dr. Rudolph Boenke died on October 27, 1946.

CORRECTION

In the article by Dr. Israel Zeligman entitled "Urinary Excretion of Porphyrin in Dermatoses" in the September issue (ARCH. DERMAT. & SYPH. **54**:281, 1946) the number of angstrom units in the second sentence of the last paragraph on page 284 should read 5,970 instead of 6,230.

Directory of Dermatologic Societies *

INTERNATIONAL

Tenth International Congress of Dermatology and Syphilology

Oliver S. Ormsby, President, 25 E. Washington St., Chicago.
Paul A. O'Leary, Secretary-General, 102–2d Ave. S.W., Rochester, Minn.
Place: New York. Time: Postponed indefinitely.

Pan American Medical Association, Section of Dermatology and Syphilology

J. J. Eller, President, 745–5th Ave., New York.
Austin W. Cheever, Secretary, 464 Beacon St., Boston.

FOREIGN

Canadian Dermatological Association

Andrew M. Davidson, President, 6 Medical Arts Bldg., Winnipeg, Manitoba.
W. George Brock, Secretary-Treasurer, 413 Medical Arts Bldg., Winnipeg, Manitoba.

North British Dermatological Society

President: Senior dermatologist in whichever city a meeting is convened.
G. A. Grant Peterkin, Secretary, 4 Walker St., Edinburgh 3, Scotland.

Royal Society of Medicine, Section of Dermatology

M. Sydney Thomson, President, King's College Hospital, Denmark Hill, London S. E. 5, England.
Geoffrey R. Edwards, Secretary, 1 Wimpole St., London W. 1, England.

Sociedad Mexicana de Dermatología

Mario Salazar Mallén, President, Ignacio Ramírez 11, México, D. F., Mexico.
Fernando Latapí, Permanent Secretary, Zacatecas 220-6, México, D. F., Mexico.

NATIONAL

American Medical Association, Scientific Assembly, Section on Dermatology and Syphilology

Clyde L. Cummer, Chairman, 1422 Euclid Ave., Cleveland.
Nelson P. Anderson, Secretary, 2007 Wilshire Blvd., Los Angeles.

American Academy of Dermatology and Syphilology

George M. MacKee, President, 999–5th Ave., New York.
Earl D. Osborne, Secretary, 471 Delaware Ave., Buffalo 2, N. Y.
Place: Hotel Statler, Cleveland. Time: Dec. 8-12, 1946.

American Board of Dermatology and Syphilology

C. Guy Lane, President, 416 Marlborough St., Boston.
George M. Lewis, Secretary-Treasurer, 66 E. 66th St., New York.

American Dermatological Association

Fred D. Weidman, President, Medical Laboratories, University of Pennsylvania, Philadelphia.
Harry R. Foerster, Secretary, 208 E. Wisconsin Ave., Milwaukee.

Society for Investigative Dermatology

Henry E. Michelson, President, 715 Medical Arts Bldg., Minneapolis.
S. William Becker, Secretary, 55 E. Washington St., Chicago 2.

* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up to date.

SECTIONAL

Central States Dermatological Association

Emerson Gillespie, President, 120 Tuscarawas St. W., Canton, Ohio.
Townsend W. Baer, Secretary-Treasurer, 508 Jenkins Arcade Bldg., Pittsburgh 22.

Mississippi Valley Dermatological Society

Lawrence C. Goldberg, Secretary-Treasurer, 623 Doctors Bldg., Cincinnati.

New England Dermatological Society

Bernard Appel, President, 281 Ocean Ave., Lynn, Mass.
G. Marshall Crawford, Secretary, 1101 Beacon St., Brookline 46, Mass.

Northern New Jersey Dermatological Society

John Kiley, President, 94 Park St., Montclair.
Henry Abel, Secretary, 339 Union Ave., Elizabeth.
Place: Academy of Medicine of Northern New Jersey, Newark. Time: Third Tuesday of March, April, October and December.

Pacific Northwest Dermatological Society

Henry Odland, President, Medical Dental Bldg., Seattle, Wash.
Robert L. Howard, Secretary, 965 Paulsen Medical and Dental Bldg., Spokane, Wash.

Southeastern Dermatological Association

Howard Hailey, Chairman, 107 Doctors Bldg., Atlanta, Ga.
A. H. Lancaster, Secretary, P. O. Box 585, Knoxville, Tenn.

Southern Medical Association, Section on Dermatology and Syphilology

A. H. Lancaster, Chairman, P. O. Box 585, Knoxville, Tenn.
Winfred A. Showman, Secretary, 108 W. 6th St., Tulsa, Okla.

Southwestern Dermatological Society

Louis Jekel, President, Professional Bldg., Phoenix, Ariz.
George K. Rogers, Secretary, Grunow Memorial, Phoenix, Ariz.

STATE

California Medical Association, Scientific Assembly, Dermatology and Syphilology Section

Frances A. Torrey, Chairman, University of California School of Medicine, San Francisco.
Herman Arlington, Secretary, 3115 Webster St., Oakland, Calif.

Connecticut State Medical Society, Section on Dermatology

F. Earle Kunkel, Chairman, 179 Allyn St., Hartford.
Louis O'Brasky, Secretary, 1172 Chapel St., New Haven.

Florida Society of Dermatology and Syphilology

Sam F. Ricker, Chairman, Exchange Bldg., Orlando.
Wesley W. Wilson, Secretary, 215 N. Boulevard, Tampa.

Hawaii Dermatological Society

Harry L. Arnold Jr., Secretary, 881 Young St., Honolulu.

Louisiana Dermatologic Society

Barrett Kennedy, President, 200 Cardondelet St., New Orleans.
V. Medd Henington, Secretary, Charity Hospital, New Orleans.

Massachusetts Medical Society, Section on Dermatology and Syphilology

Bernard Appel, President, 281 Ocean St., Lynn.
Fenner A. Chace, Secretary, 151 Rock St., Fall River.

MEDICAL SOCIETY OF THE STATE OF NEW YORK, SECTION ON DERMATOLOGY AND SYPHILOLOGY

E. W. Abramowitz, President, 853–7th Ave., New York.
Shepard Quinby, Secretary, 333 Linwood Ave., Buffalo.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, SECTION ON DERMATOLOGY

Herman Beerman, Chairman, 2422 Pine St., Philadelphia 3.
Thomas Butterworth, Secretary, 411 Walnut St., Reading.

MICHIGAN STATE MEDICAL SOCIETY, SECTION ON DERMATOLOGY AND SYPHILOLOGY

Loren Shaffer, Chairman, 724 Hawthorne, Grosse Point Woods, Detroit.
Ruth Herrick, Secretary, 303 Medical Arts Bldg., Grand Rapids 2.

MINNESOTA DERMATOLOGICAL SOCIETY

Louis A. Brunsting, President, 102–2d Ave. S.W., Rochester.
Rodney F. Kendall, Secretary-Treasurer, 1160 Lowry Bldg., St. Paul.
Time: First Friday in January, April, July and October.

OKLAHOMA STATE DERMATOLOGICAL SOCIETY

John H. Lamb Jr., President, Medical Arts Bldg., Oklahoma City.
M. M. Wickham, Secretary, 716 W. Symmes St., Norman.

TEXAS DERMATOLOGICAL SOCIETY

William Spiller, President, 906–22d St., Galveston.
John Brav, Secretary-Treasurer, Medical Arts Bldg., Dallas.

LOCAL

BALTIMORE-WASHINGTON DERMATOLOGICAL SOCIETY

Maurice Sullivan, Chairman, 3301 N. Charles St., Baltimore 18.
Lawrence B. McCaleb, Secretary-Treasurer, 1834 K St. N. W., Washington 6, D. C.
Place: Alternate cities. Time: Third Thursday of each month.

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Henry Silver, Secretary, 290 West End Ave., New York.
Time: Fourth Thursday of each month from October to May, inclusive.

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Time: Third Thursday of every month except July and August.

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Place: Barnard Free Skin and Cancer Hospital. Time: 8 p. m., third Monday of each month.

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Time: Third Friday of February, April, September and November.

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